RADIO TEST REPORT
FCC ID: FPW-511AS

Product:	2 in 1 tablet PC
Trade Name:	vitaLASC
Model No.:	511
Serial Model:	N/A
Report No.:	NTEK-2016NT09128878F3
Issue Date:	15 Oct. 2016

Prepared for

Jing Mold Electronic Technology (Shen Zhen) Co., Ltd.

Xinqiao,3rd Industral Estate,Shajing Baoan,Shenzhen,China

Prepared by

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1 TEST RESULT CERTIFICATION

Applicant's name ..... :	Jing Mold Electronic Technology (Shen Zhen) Co., Ltd.
Address ..... :	Xinqiao,3rd Industral Estate,Shajing Baoan,Shenzhen,China
Manufacture's Name ..... :	Jing Mold Electronic Technology (Shen Zhen) Co., Ltd.
Address ..... :	Xinqiao,3rd Industral Estate,Shajing Baoan,Shenzhen,China
Product description	
Product name ..... :	2 in 1 tablet PC
Model and/or type reference ..... :	511
Serial Model ..... :	N/A

Measurement Procedure Used:

APPLICABLE STANDARDS	
APPLICABLE STANDARD/ TEST PROCEDURE	TEST RESULT
FCC 47 CFR Part 2, Subpart J:2016 FCC 47 CFR Part 15, Subpart C:2016 KDB 174176 D01 Line Conducted FAQ v01r01 ANSI C63.10-2013 FCC KDB 558074 D01 DTS Meas Guidance v03r05	Complied

This device described above has been tested by NTEK Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
This report shall not be reproduced except in full, without the written approval of NTEK Testing Technology Co., Ltd., this document may be altered or revised by NTEK Testing Technology Co., Ltd., personnel only, and shall be noted in the revision of the document.
The test results of this report relate only to the tested sample identified in this report.

Date of Test : 12 Sep. 2016 ~ 15 Oct. 2016

Testing Engineer : Lake. Xie
(Lake Xie)

Technical Manager : Jason chen
(Jason Chen)

Authorized Signatory : Sam. Chen
(Sam Chen)

2 SUMMARY OF TEST RESULTS

FCC Part15 (15.247), Subpart C			
Standard Section	**Test Item**	**Verdict**	**Remark**
15.207	Conducted Emission	PASS	
15.247 (a)(2)	6dB Bandwidth	PASS	
15.247 (b)	Maximum Output Power	PASS	
15.247 (c)	Radiated Spurious Emission	PASS	
15.247 (d)	Power Spectral Density	PASS	
15.205	Emission in non-restricted Band	PASS	
15.203	Antenna Requirement	PASS	

Remark:
1. "N/A" denotes test is not applicable in this Test Report.
2. All test items were verified and recorded according to the standards and without any deviation during the test.
3. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

3 FACILITIES AND ACCREDITATIONS

3.1 FACILITIES

All measurement facilities used to collect the measurement data are located at
1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.
The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 22.

3.2 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description

EMC Lab.	:	Accredited by CNAS, 2014.09.04 The certificate is valid until 2017.09.03 The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2005) The Certificate Registration Number is L5516. Accredited by Industry Canada, August 29, 2012 The Certificate Registration Number is 9270A-1. Accredited by FCC, September 06, 2013 The Certificate Registration Number is 238937.
Name of Firm	:	NTEK Testing Technology Co., Ltd
Site Location	:	1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.

3.3 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	RF power, conducted	±0.16dB
3	Spurious emissions, conducted	±0.21dB
4	All emissions, radiated(<1G)	±4.68dB
5	All emissions, radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%

Revision History

Report No.	Version	Description	Issued Date
NTEK-2016NT09128878F3	Rev.01	Initial issue of report	Oct 15, 2016

4 GENERAL DESCRIPTION OF EUT

Product Feature and Specification	
Equipment	2 in 1 tablet PC
Trade Name	vitaLASC
FCC ID	FPW-511AS
Model No.	511
Serial Model	N/A
Model Difference	N/A
Operating Frequency	2412-2462MHz for 802.11b/g/11n(HT20); 2422-2452MHz for 802.11n(HT40);
Modulation	DSSS with DBPSK/DQPSK/CCK for 802.11b; OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n;
Number of Channels	11 channels for 802.11b/g/11n(HT20); 7 channels for 802.11n(HT40);
Antenna	FPCB /1dBi
Power supply	☒DC supply: DC 3.7V/8500mAh from Li-ion Battery or DC 5V from DC Port.
	☒Adapter supply: Model:SOY-0500200US Input:100-240V~50-60Hz 0.3A Output:5V 2.0A
HW Version	MS-MB-V100
SW Version	N/A

Note 1: Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.

5 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.
The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.
The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement –X, Y, and Z-plane. The Y-plane results were found as the worst case and were shown in this report.

Frequency and Channel list for 802.11b/g/n (HT20):

Channel	Frequency(MHz)
1	2412
2	2417
…	…
5	2432
6	2437
…	…
10	2457
11	2462

Note: fc=2412MHz+k×5MHz k=0 to 10

Frequency and Channel list for 802.11n (HT40):

Channel	Frequency(MHz)
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452

Note: fc=2422MHz+k×5MHz k=0 to 6

1. EUT built-in battery-powered, fully-charged battery use of the test battery

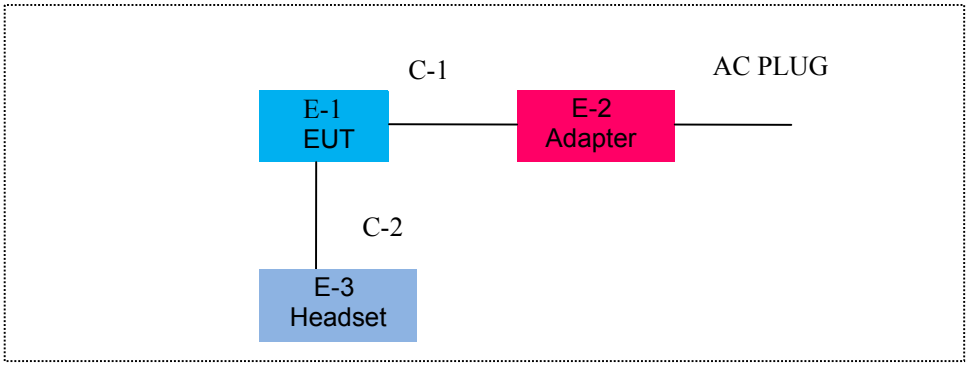
Test Mode:

Test Items	Mode	Data Rate	Channel	Ant
AC Power Line Conducted Emissions	Normal Link	-	-	-
Maximum Conducted Output Power	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
	11n HT20	MCS0	1/6/11	1
	11n HT40	MCS0	3/6/9	1
Power Spectral Density				
	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
	11n HT20	MCS0	1/6/11	1
	11n HT40	MCS0	3/6/9	1
6dB Spectrum Bandwidth				
	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
	11n HT20	MCS0	1/6/11	1
	11n HT40	MCS0	3/6/9	1
Radiated Emissions Below 1GHz	Normal Link	-	-	-
Radiated Emissions Above 1GHz				
	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
	11n HT20	MCS0	1/6/11	1
	11n HT40	MCS0	3/6/9	1
Band Edge Emissions				
	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
	11n HT20	MCS0	1/6/11	1
	11n HT40	MCS0	3/6/9	1

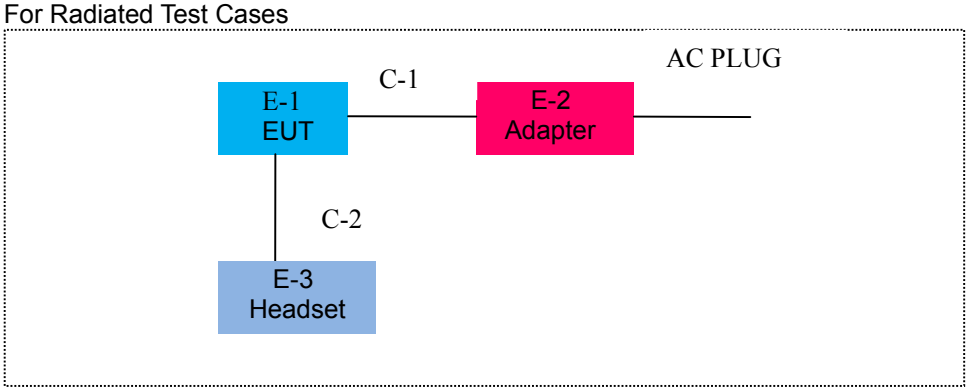
6 SETUP OF EQUIPMENT UNDER TEST

6.1 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM

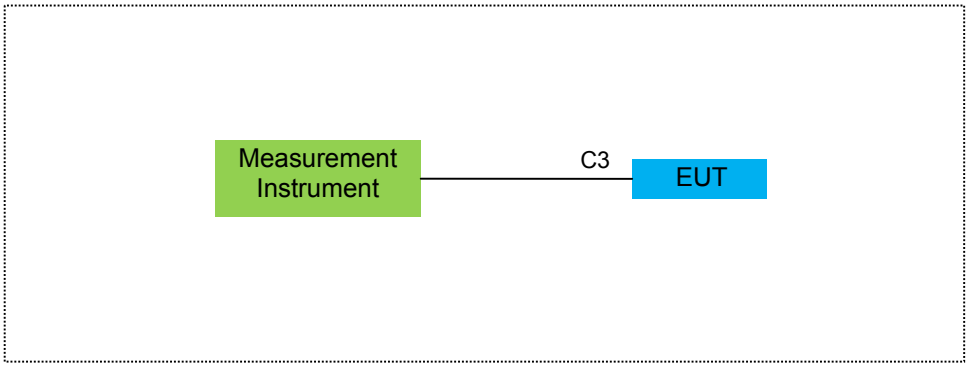
For AC Conducted Emission Mode



For Radiated Test Cases



For Conducted Test Cases



Note:The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

6.2 SUPPORT EQUIPMENT

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Note
E-1	2 in 1 tablet PC	vitaLASC	511	FPW-511AS	EUT
E-2	Adapter	/	SOY-0500200US	N/A	Peripherals
E-3	Headset	SENNHEISER	MX 80	N/A	

Item	Cable Type	Shielded Type	Ferrite Core	Length	Note
C-1	DC Cable	NO	NO	1.0m	
C-2	Audio Cable	NO	NO	1.2m	
C-3	RF Cable	NO	NO	0.5m	

Notes:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.
(3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

6.3 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2016.07.06	2017.07.05	1 year
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2016.07.06	2017.07.05	1 year
3	EMI Test Receiver	Agilent	N9038A	MY53227146	2016.06.06	2017.06.05	1 year
4	Test Receiver	R&S	ESPI	101318	2016.06.06	2017.06.05	1 year
5	Bilog Antenna	TESEQ	CBL6111D	31216	2016.07.06	2017.07.05	1 year
6	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2016.06.06	2017.06.05	1 year
7	Horn Antenna	EM	EM-AH-10180	2011071402	2016.07.06	2017.07.05	1 year
8	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2016.07.06	2017.07.05	1 year
9	Amplifier	EM	EM-30180	060538	2015.12.22	2016.12.21	1 year
10	Amplifier	MITEQ	TTA1840-35-HG	177156	2016.06.06	2017.06.05	1 year
11	Loop Antenna	ARA	PLA-1030/B	1029	2016.06.06	2017.06.05	1 year
12	Power Meter	DARE	RPR3006W	100696	2016.07.06	2017.07.05	1 year
13	Test Cable (9KHz-30MHz)	N/A	R-01	N/A	2016.07.06	2017.07.05	1 year
14	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2016.07.06	2017.07.05	1 year
15	High Test Cable(1G-40GHz)	N/A	R-03	N/A	2016.06.06	2017.06.05	1 year
16	High Test Cable(1G-40GHz)	N/A	R-04	N/A	2016.06.06	2017.06.05	1 year
17	temporary antenna connector (Note)	NTS	R001	N/A	N/A	N/A	N/A

Note:
We will use the temporary antenna connector (soldered on the PCB board) When conducted test
And this temporary antenna connector is listed within the instrument list

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2016.06.06	2017.06.05	1 year
2	LISN	R&S	ENV216	101313	2016.08.24	2017.08.23	1 year
3	LISN	EMCO	3816/2	00042990	2016.08.24	2017.08.23	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2016.06.07	2017.06.06	1 year
5	Test Cable (9KHz-30MHz)	N/A	C01	N/A	2016.06.08	2017.06.07	1 year
6	Test Cable (9KHz-30MHz)	N/A	C02	N/A	2016.06.08	2017.06.07	1 year
7	Test Cable (9KHz-30MHz)	N/A	C03	N/A	2016.06.08	2017.06.07	1 year

Note: Each piece of equipment is scheduled for calibration once a year.

7 TEST REQUIREMENTS

7.1 CONDUCTED EMISSIONS TEST

7.1.1 Applicable Standard

According to FCC Part 15.207(a) and KDB 174176 D01 Line Conducted FAQ v01r01

7.1.2 Conformance Limit

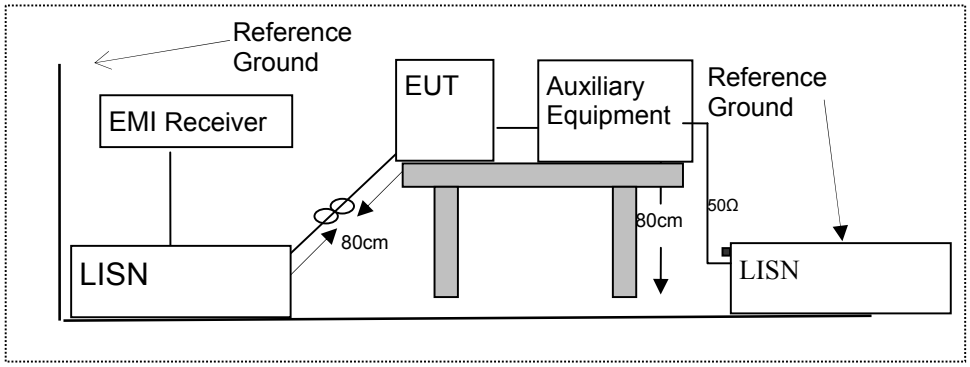
Frequency(MHz)	Conducted Emission Limit	
	Quasi-peak	Average
0.15-0.5	66-56*	56-46*
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. *Decreases with the logarithm of the frequency
2. The lower limit shall apply at the transition frequencies
3. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

7.1.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.1.4 Test Configuration



7.1.5 Test Procedure

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room.
2. The EUT was placed on a table which is 0.8m above ground plane.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
4. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40cm long.
5. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
6. LISN at least 80 cm from nearest part of EUT chassis.
7. The frequency range from 150KHz to 30MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth(IF bandwidth=9KHz) with Maximum Hold Mode
9. For the actual test configuration, please refer to the related Item –EUT Test Photos.

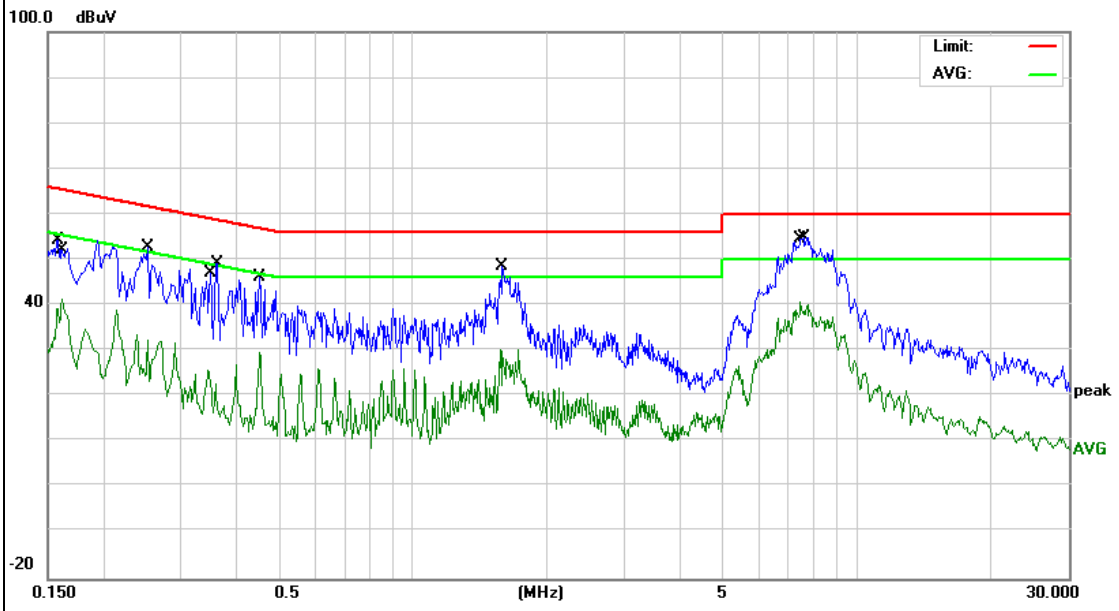
7.1.6 Test Results

EUT:	2 in 1 tablet PC	Model Name :	511
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	L
Test Voltage :	DC 5.0V form Adapter AC 120V/60Hz	Test Mode:	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.158	44.26	10.12	54.38	65.56	-11.18	QP
0.162	31.22	10.12	41.34	55.36	-14.02	AVG
0.2519	42.56	10.14	52.70	61.69	-8.99	QP
0.2519	22.36	10.14	32.50	51.69	-19.19	AVG
0.3462	15.30	10.09	25.39	49.05	-23.66	AVG
0.3618	39.16	10.08	49.24	58.69	-9.45	QP
0.45	36.23	9.93	46.16	56.87	-10.71	QP
0.45	19.57	9.93	29.50	46.87	-17.37	AVG
1.57	20.38	9.81	30.19	46.00	-15.81	AVG
1.5859	38.79	9.81	48.60	56.00	-7.40	QP
7.4778	30.76	9.85	40.61	50.00	-9.39	AVG
7.6017	45.15	9.85	55.00	60.00	-5.00	QP

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

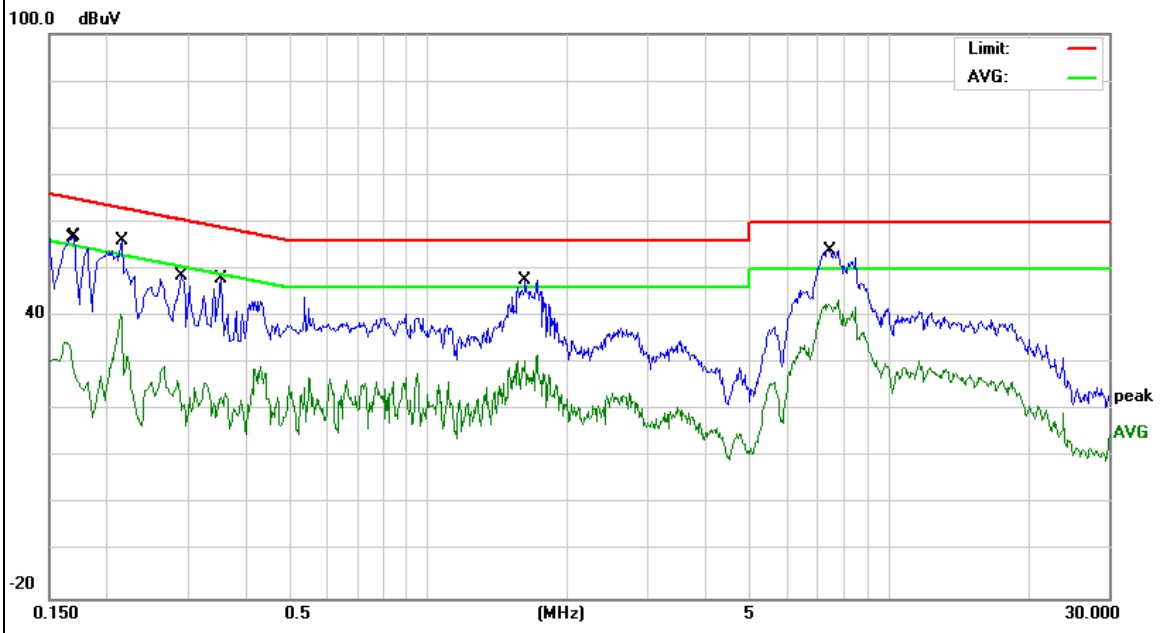


EUT:	2 in 1 tablet PC	Model Name :	511
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	N
Test Voltage :	DC 5.0V form Adapter AC 120V/60Hz	Test Mode:	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.166	23.85	10.06	33.91	55.15	-21.24	AVG
0.17	46.76	10.06	56.82	64.96	-8.14	QP
0.2139	30.43	10.04	40.47	53.05	-12.58	AVG
0.2149	46.16	10.04	56.20	63.01	-6.81	QP
0.2862	15.72	10.11	25.83	50.63	-24.80	AVG
0.2899	38.35	10.12	48.47	60.52	-12.05	QP
0.3539	37.82	10.09	47.91	58.87	-10.96	QP
0.3539	12.52	10.09	22.61	48.87	-26.26	AVG
1.622	37.87	9.83	47.70	56.00	-8.30	QP
1.622	20.77	9.83	30.60	46.00	-15.40	AVG
7.3859	32.83	9.82	42.65	50.00	-7.35	AVG
7.4819	44.28	9.82	54.10	60.00	-5.90	QP

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

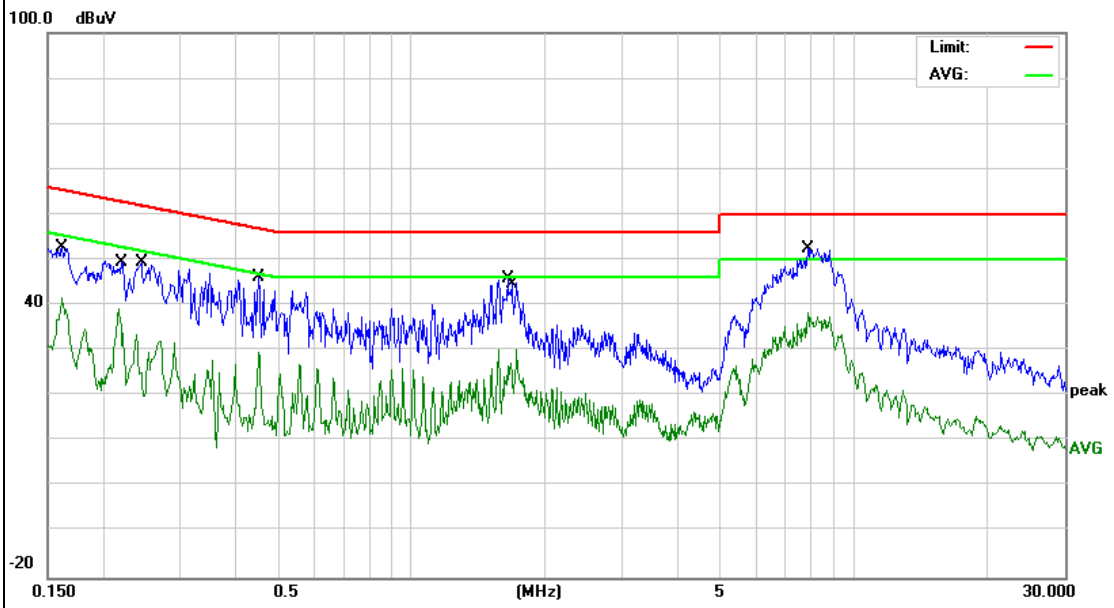


EUT:	2 in 1 tablet PC	Model Name :	511
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	L
Test Voltage :	DC 5.0V form Adapter AC 240V/60Hz	Test Mode:	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.162	42.58	10.12	52.70	65.36	-12.66	QP
0.162	31.62	10.12	41.74	55.36	-13.62	AVG
0.2179	29.20	10.13	39.33	52.89	-13.56	AVG
0.2195	39.47	10.13	49.60	62.83	-13.23	QP
0.244	23.36	10.13	33.49	51.96	-18.47	AVG
0.2442	39.31	10.13	49.44	61.95	-12.51	QP
0.45	36.23	9.93	46.16	56.87	-10.71	QP
0.45	19.57	9.93	29.50	46.87	-17.37	AVG
1.677	35.90	9.80	45.70	56.00	-10.30	QP
1.6777	17.59	9.80	27.39	46.00	-18.61	AVG
7.8898	42.74	9.86	52.60	60.00	-7.40	QP
7.8898	28.49	9.86	38.35	50.00	-11.65	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

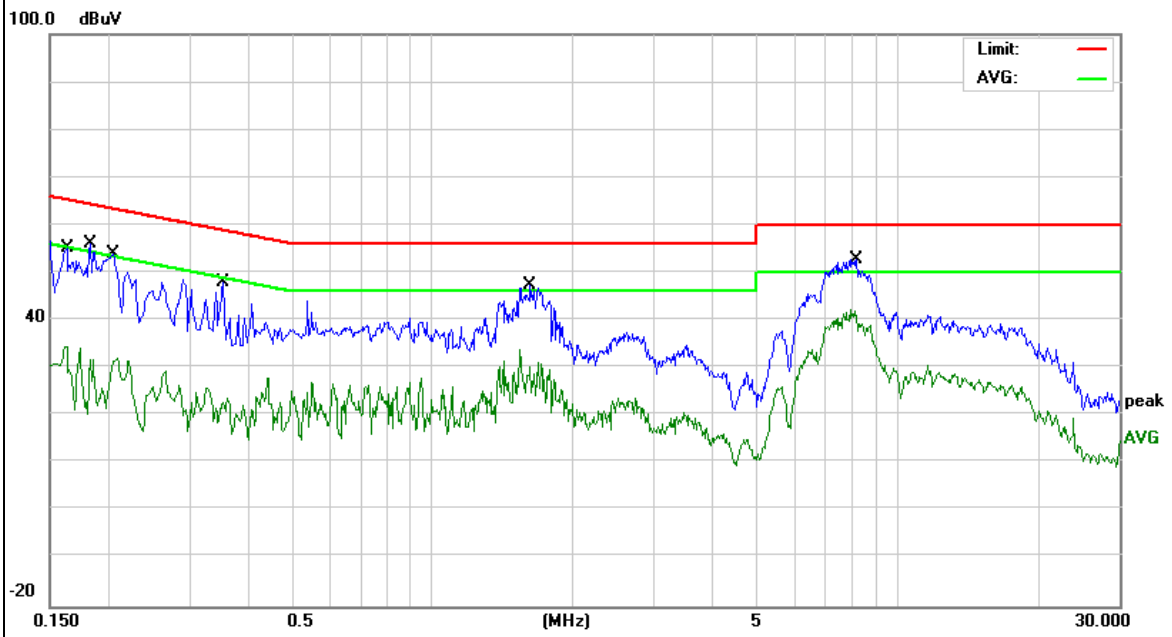


EUT:	2 in 1 tablet PC	Model Name :	511
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	N
Test Voltage :	DC 5.0V form Adapter AC 240V/60Hz	Test Mode:	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.162	24.45	10.07	34.52	55.36	-20.84	AVG
0.1632	45.22	10.06	55.28	65.29	-10.01	QP
0.1833	46.16	10.04	56.20	64.33	-8.13	QP
0.1859	21.73	10.04	31.77	54.21	-22.44	AVG
0.2058	44.03	10.03	54.06	63.37	-9.31	QP
0.2071	21.56	10.03	31.59	53.32	-21.73	AVG
0.3537	37.82	10.09	47.91	58.87	-10.96	QP
0.3537	12.52	10.09	22.61	48.87	-26.26	AVG
1.622	37.47	9.83	47.30	56.00	-8.70	QP
1.622	20.37	9.83	30.20	46.00	-15.80	AVG
8.16	32.43	9.84	42.27	50.00	-7.73	AVG
8.1617	42.96	9.84	52.80	60.00	-7.20	QP

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



7.2 RADIATED SPURIOUS EMISSION

7.2.1 Applicable Standard

According to FCC Part 15.247(d) and 15.209 and ANSI C63.10-2013

7.2.2 Conformance Limit

According to FCC Part 15.247(d): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
According to FCC Part15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009~0.490	2400/F(KHz)	20 log (uV/m)	300
0.490~1.705	2400/F(KHz)	20 log (uV/m)	30
1.705~30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Limits of Radiated Emission Measurement(Above 1000MHz)

Frequency(MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

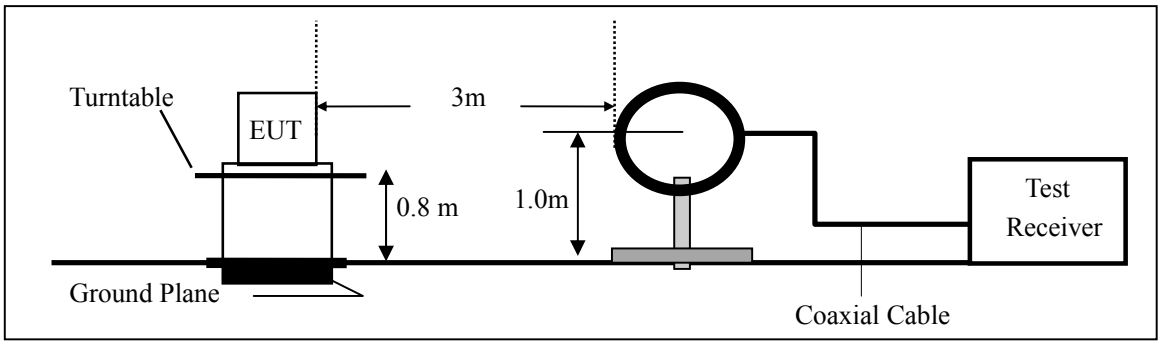
Remark :1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.

7.2.3 Measuring Instruments

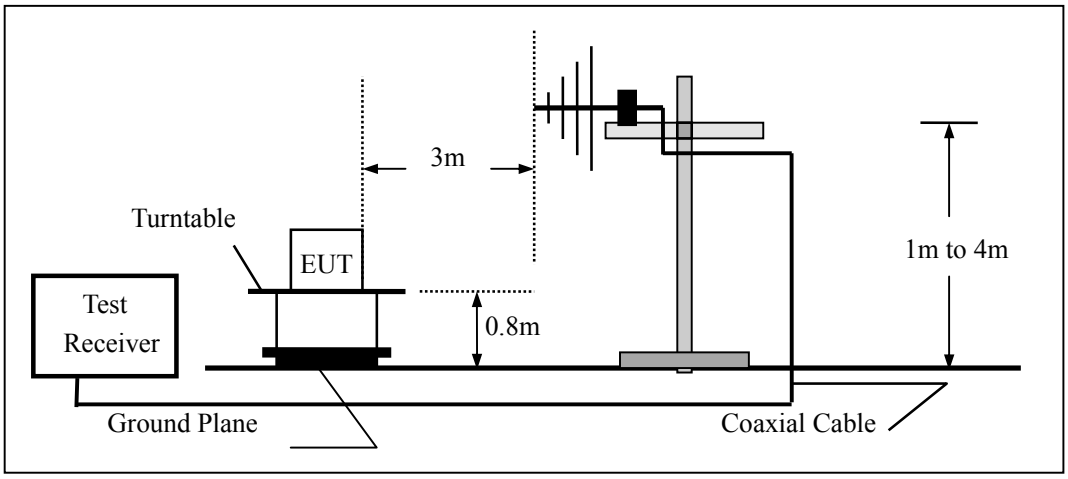
The Measuring equipment is listed in the section 6.3 of this test report.

7.2.4 Test Configuration

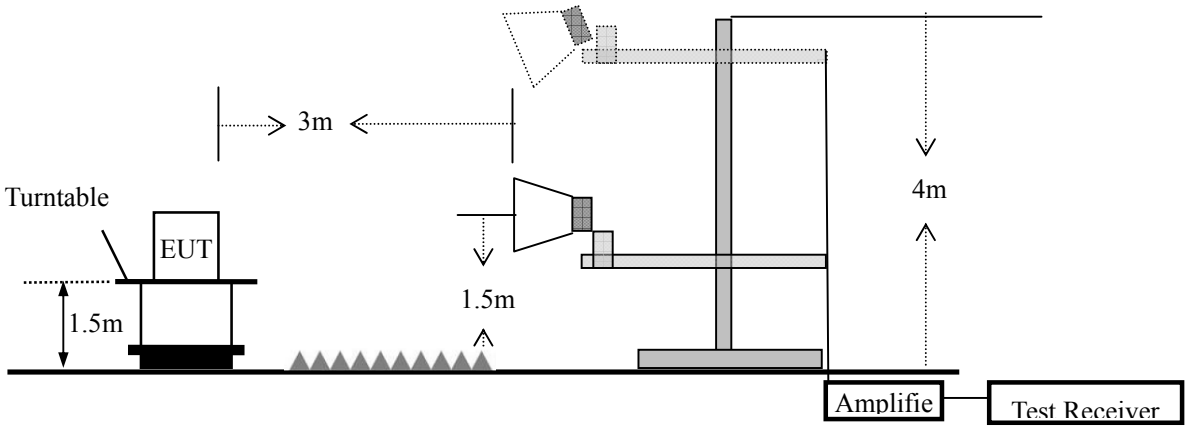
(a) For radiated emissions below 30MHz



(b) For radiated emissions from 30MHz to 1000MHz



(c) For radiated emissions above 1000MHz



7.2.5 Test Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.
This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT.
Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz and frequencies above 1GHz,
b. The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For the radiated emission test above 1GHz:
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
e. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
f. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
g For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	10 Hz

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where RBWCF [dB] =10*lg(100 [kHz]/narrower RBW [kHz]). , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

7.2.6 Test Results

■ Spurious Emission below 30MHz (9KHz to 30MHz)

EUT:	2 in 1 tablet PC	Model No.:	511
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Normal Link	Test By:	Lake Xie

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
--	--	--	--	--	--	--	--

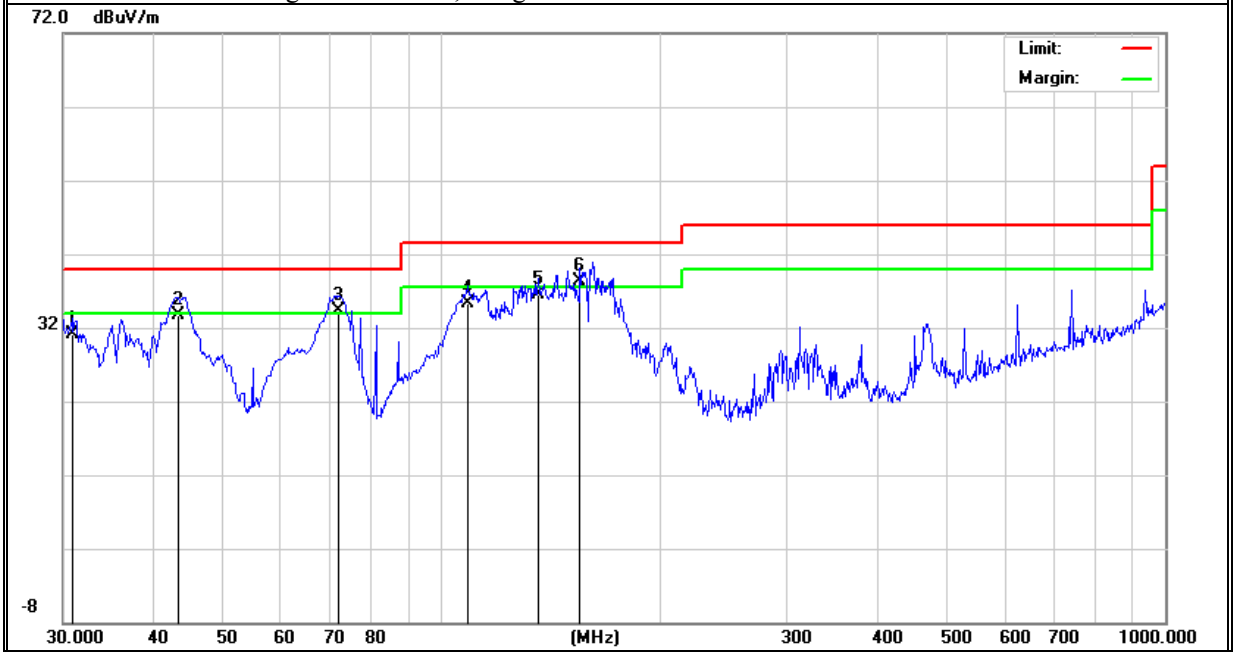
Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
Distance extrapolation factor =20log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor

■ Spurious Emission below 1GHz (30MHz to 1GHz)

EUT:	2 in 1 tablet PC	Model Name :	511
Temperature:	20 ℃	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	Normal Link		

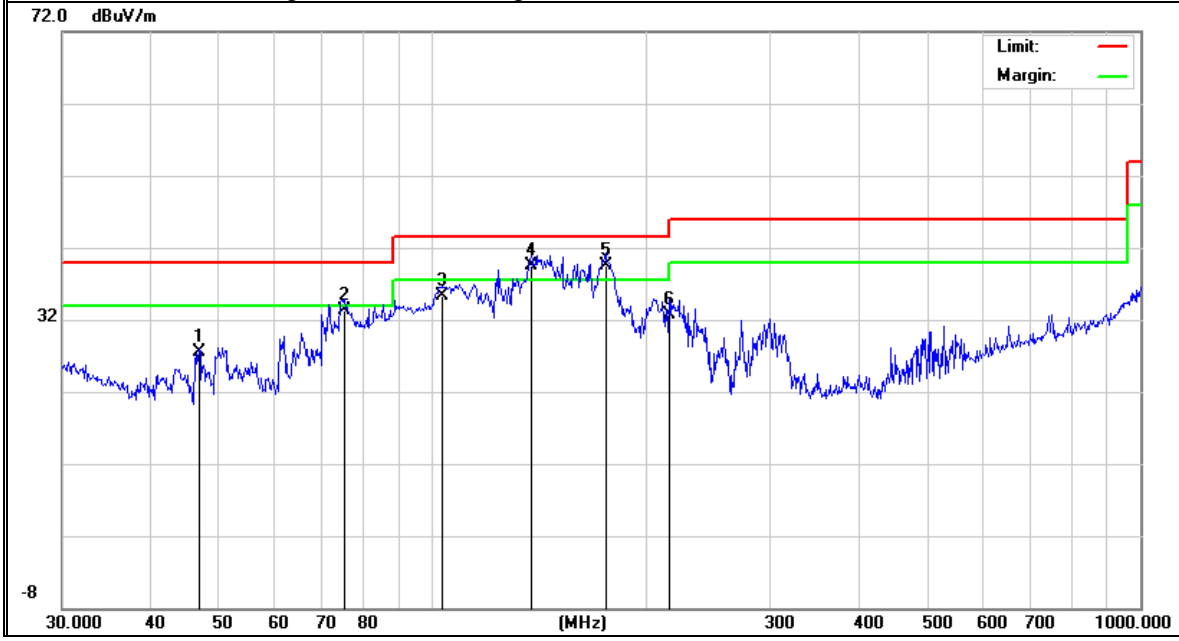
Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	30.8535	11.26	19.94	31.2	40	-8.8	QP
V	43.3534	20.07	13.62	33.69	40	-6.31	QP
V	72.0841	23.71	10.54	34.25	40	-5.75	QP
V	108.647	24.01	11.31	35.32	43.5	-8.18	QP
V	135.9822	24.52	12.06	36.58	43.5	-6.92	QP
V	155.3643	25.33	12.92	38.25	43.5	-5.25	QP

Remark:
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	46.8303	16.59	11.01	27.6	40	-12.4	QP
H	75.1821	22.7	10.55	33.25	40	-6.75	QP
H	103.4419	23.93	11.3	35.23	43.5	-8.27	QP
H	137.9028	27.48	12.08	39.56	43.5	-3.94	QP
H	175.6516	26.12	13.44	39.56	43.5	-3.94	QP
H	216.0240	20.41	12.27	32.68	46.0	-13.32	QP

Remark:
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



■ Spurious Emission Above 1GHz (1GHz to 27GHz)

EUT:	2 in 1 tablet PC	Model No.:	511
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	TX (802.11b/g/n20/n40)	Test By:	Lake Xie

All the modulation modes have been tested, and the worst result was report as below:

Frequency	Read Level	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark	Comment
(MHz)	(dBμV)	(dB)	dB/m	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
Low Channel (2412 MHz)(802.11b)--Above 1G									
4824	54.36	5.21	35.59	44.30	50.86	74.00	-23.14	Pk	Vertical
4824	43.75	5.21	35.59	44.30	40.25	54.00	-13.75	AV	Vertical
7236	51.00	6.48	36.27	44.60	49.15	74.00	-24.85	Pk	Vertical
7236	42.43	6.48	36.27	44.60	40.58	54.00	-13.42	AV	Vertical
4824	50.90	5.21	35.55	44.30	47.36	74.00	-26.64	Pk	Horizontal
4824	41.53	5.21	35.55	44.30	37.99	54.00	-16.01	AV	Horizontal
7236	52.46	6.48	36.27	44.52	50.69	74.00	-23.31	Pk	Horizontal
7236	41.80	6.48	36.27	44.52	40.03	54.00	-13.97	AV	Horizontal
Low Channel (2437 MHz)(802.11b)--Above 1G									
4874	56.82	5.21	35.66	44.20	53.49	74.00	-20.51	Pk	Vertical
4874	43.06	5.21	35.66	44.20	39.73	54.00	-14.27	AV	Vertical
7311	54.93	7.10	36.50	44.43	54.10	74.00	-19.90	Pk	Vertical
7311	43.63	7.10	36.50	44.43	42.80	54.00	-11.20	AV	Vertical
4874	54.58	5.21	35.66	44.20	51.25	74.00	-22.75	Pk	Horizontal
4874	41.03	5.21	35.66	44.20	37.70	54.00	-16.30	AV	Horizontal
7311	49.65	7.10	36.50	44.43	48.82	74.00	-25.18	Pk	Horizontal
7311	42.48	7.10	36.50	44.43	41.65	54.00	-12.35	AV	Horizontal
Low Channel (2462 MHz)(802.11b)--Above 1G									
4924	54.14	5.21	35.52	44.21	50.66	74.00	-23.34	Pk	Vertical
4924	43.17	5.21	35.52	44.21	39.69	54.00	-14.31	AV	Vertical
7386	50.67	7.10	36.53	44.60	49.70	74.00	-24.30	Pk	Vertical
7386	42.02	7.10	36.53	44.60	41.05	54.00	-12.95	AV	Vertical
4924	54.30	5.21	35.52	44.21	50.82	74.00	-23.18	Pk	Horizontal
4924	42.07	5.21	35.52	44.21	38.59	54.00	-15.41	AV	Horizontal
7386	49.61	7.10	36.53	44.60	48.64	74.00	-25.36	Pk	Horizontal
7386	43.93	7.10	36.53	44.60	42.96	54.00	-11.04	AV	Horizontal

Note: (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
(2) Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor
(3) Data of measurement within this frequency range shown " -- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(4)"802.11b" mode is the worst mode. When PK value is lower than the Average value limit, average didn't record.

■ Spurious Emission in Restricted Band 2310MHz-18000MHz the worst result was report as below:

Frequency	Meter Reading	Cable Loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector	Comment
(MHz)	(dBμV)	(dB)	dB/m	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type	
802.11b									
2390.00	53.92	3.14	27.21	43.80	40.47	74	-33.53	Pk	Vertical
2390.00	40.31	3.14	27.21	43.80	26.86	54	-27.14	AV	Vertical
2390.00	51.31	3.14	27.21	43.80	37.86	74	-36.14	Pk	Horizontal
2390.00	41.58	3.14	27.21	43.80	28.13	54	-25.87	AV	Horizontal
2483.50	50.59	3.58	27.70	44.00	37.87	74	-36.13	Pk	Vertical
2483.50	42.16	3.58	27.70	44.00	29.44	54	-24.56	AV	Vertical
2483.50	53.85	3.58	27.70	44.00	41.13	74	-32.87	Pk	Horizontal
2483.50	42.19	3.58	27.70	44.00	29.47	54	-24.53	AV	Horizontal
802.11g									
2390.00	51.65	3.14	27.21	43.80	38.20	74	-35.80	Pk	Vertical
2390.00	43.30	3.14	27.21	43.80	29.85	54	-24.15	AV	Vertical
2390.00	50.99	3.14	27.21	43.80	37.54	74	-36.46	Pk	Horizontal
2390.00	43.20	3.14	27.21	43.80	29.75	54	-24.25	AV	Horizontal
2483.50	51.94	3.58	27.70	44.00	39.22	74	-34.78	Pk	Vertical
2483.50	40.86	3.58	27.70	44.00	28.14	54	-25.86	AV	Vertical
2483.50	51.61	3.58	27.70	44.00	38.89	74	-35.11	Pk	Horizontal
2483.50	41.89	3.58	27.70	44.00	29.17	54	-24.83	AV	Horizontal
802.11n20									
2390.00	54.56	3.14	27.21	43.80	41.11	74	-32.89	Pk	Vertical
2390.00	42.01	3.14	27.21	43.80	28.56	54	-25.44	AV	Vertical
2390.00	51.52	3.14	27.21	43.80	38.07	74	-35.93	Pk	Horizontal
2390.00	40.92	3.14	27.21	43.80	27.47	54	-26.53	AV	Horizontal
2483.50	50.34	3.58	27.70	44.00	37.62	74	-36.38	Pk	Vertical
2483.50	43.95	3.58	27.70	44.00	31.23	54	-22.77	AV	Vertical
2483.50	53.62	3.58	27.70	44.00	40.90	74	-33.10	Pk	Horizontal
2483.50	42.99	3.58	27.70	44.00	30.27	54	-23.73	AV	Horizontal
802.11n40									
2390.00	54.81	3.14	27.21	43.80	41.36	74	-32.64	Pk	Vertical
2390.00	42.92	3.14	27.21	43.80	29.47	54	-24.53	AV	Vertical
2390.00	50.91	3.14	27.21	43.80	37.46	74	-36.54	Pk	Horizontal
2390.00	40.17	3.14	27.21	43.80	26.72	54	-27.28	AV	Horizontal
2483.50	54.33	3.58	27.70	44.00	41.61	74	-32.39	Pk	Vertical
2483.50	42.94	3.58	27.70	44.00	30.22	54	-23.78	AV	Vertical
2483.50	54.44	3.58	27.70	44.00	41.72	74	-32.28	Pk	Horizontal
2483.50	42.20	3.58	27.70	44.00	29.48	54	-24.52	AV	Horizontal

(1) Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor

Spurious Emission in Restricted Bands 3260MMHz- 18000MHz

All the modulation modes have been tested, the worst result 802.11b was report as below:

Frequency	Reading Level	Cable Loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector	Comment
(MHz)	(dBμV)	(dB)	dB/m	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type	
3260	60.36	4.04	29.57	44.70	49.27	74	-24.73	Pk	Vertical
3260	57.20	4.04	29.57	44.70	46.11	54	-7.89	AV	Vertical
3260	64.14	4.04	29.57	44.70	53.05	74	-20.95	Pk	Horizontal
3260	56.90	4.04	29.57	44.70	45.81	54	-8.19	AV	Horizontal
3332	60.53	4.26	29.87	44.40	50.26	74	-23.74	Pk	Vertical
3332	57.78	4.26	29.87	44.40	47.51	54	-6.49	AV	Vertical
3332	63.17	4.26	29.87	44.40	52.90	74	-21.10	Pk	Horizontal
3332	53.04	4.26	29.87	44.40	42.77	54	-11.23	AV	Horizontal
17789	60.23	10.99	43.95	43.50	71.67	74	-2.33	Pk	Vertical
17789	50.63	10.99	43.95	43.50	62.07	54	8.07	AV	Vertical
17957	57.26	11.81	43.69	44.60	68.16	74	-5.84	Pk	Horizontal
17957	50.31	11.81	43.69	44.60	61.21	54	7.21	AV	Horizontal

802.11b" mode is the worst mode. When PK value is lower than the Average value limit, average didn't record.

7.3 6DB BANDWIDTH

7.3.1 Applicable Standard

According to FCC Part 15.247(a)(2) and KDB 558074 DTS 01 Meas. Guidance v03r05

7.3.2 Conformance Limit

The minimum permissible 6dB bandwidth is 500 kHz.

7.3.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.3.4 Test Setup

Please refer to Section 6.1 of this test report.

7.3.5 Test Procedure

The testing follows KDB 558074 DTS 01 Meas. Guidance v03r05
The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
Set to the maximum power setting and enable the EUT transmit continuously.
The EUT was operating in controlled its channel.
Use the following spectrum analyzer settings:
Span = the frequency band of operation
RBW = 100KHz
VBW ≥ 3*RBW
Sweep = auto
Detector function = peak
Trace = max hold

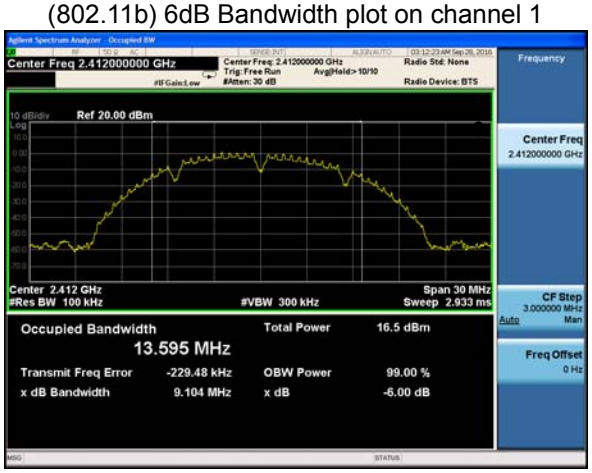
7.3.6 Test Results

EUT:	2 in 1 tablet PC	Model No.:	511
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode1/Mode2/Mode3/Mode4	Test By:	Lake Xie

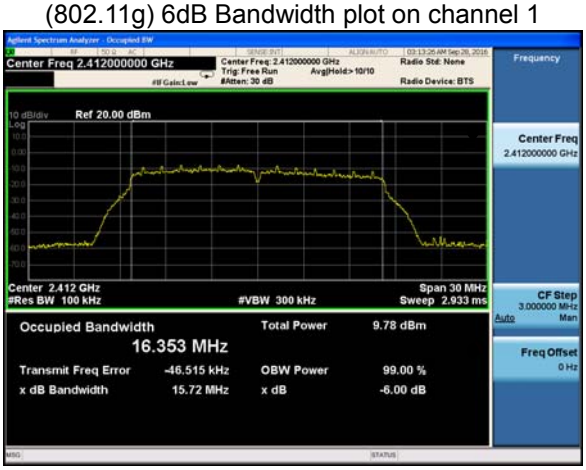
Mode	Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
802.11b	Low	2412	9.104	500	Pass
	Middle	2437	10.08	500	Pass
	High	2462	10.60	500	Pass
802.11g	Low	2412	15.72	500	Pass
	Middle	2437	15.78	500	Pass
	High	2462	15.80	500	Pass
802.11n20	Low	2412	16.09	500	Pass
	Middle	2437	16.37	500	Pass
	High	2462	16.40	500	Pass
802.11n40	Low	2422	35.87	500	Pass
	Middle	2437	35.16	500	Pass
	High	2452	35.75	500	Pass

Test plot

(802.11b) 6dB Bandwidth plot on channel 1

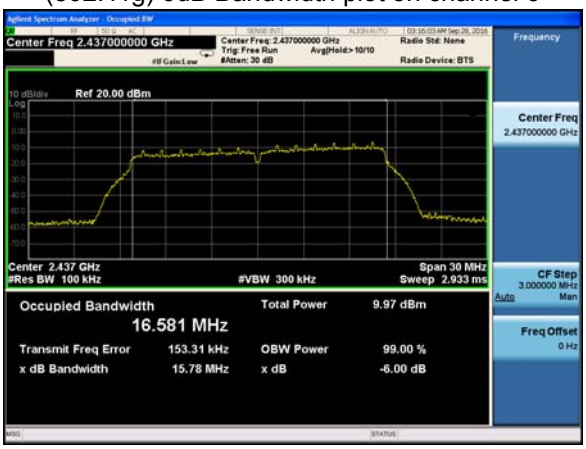


(802.11g) 6dB Bandwidth plot on channel 1



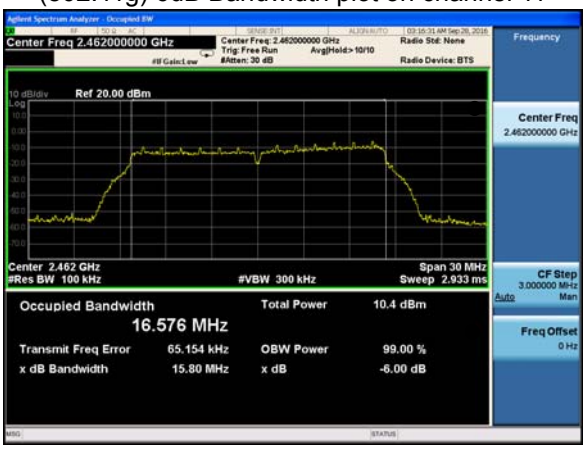
(802.11b) 6dB Bandwidth plot on channel 6

(802.11g) 6dB Bandwidth plot on channel 6



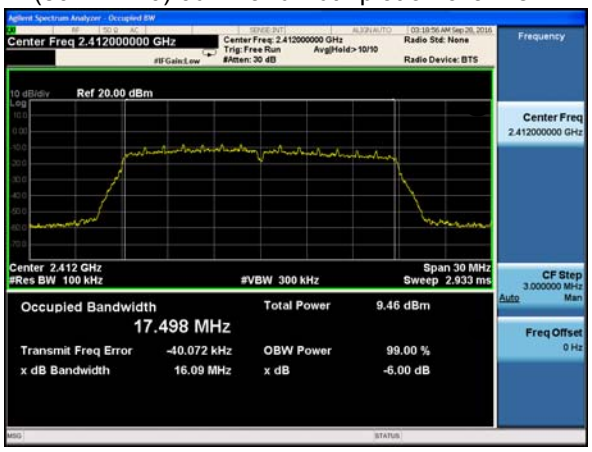
(802.11b) 6dB Bandwidth plot on channel 11

(802.11g) 6dB Bandwidth plot on channel 11

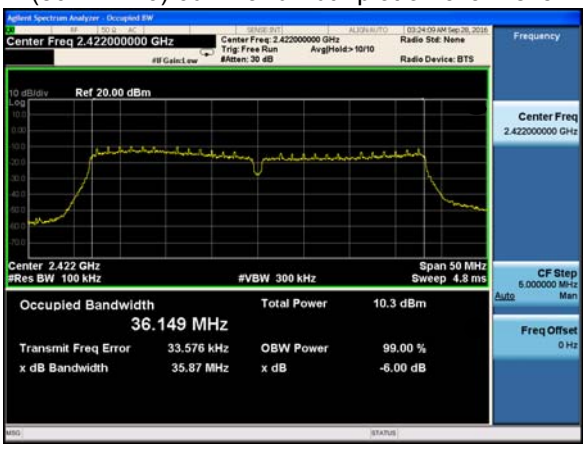


Test plot

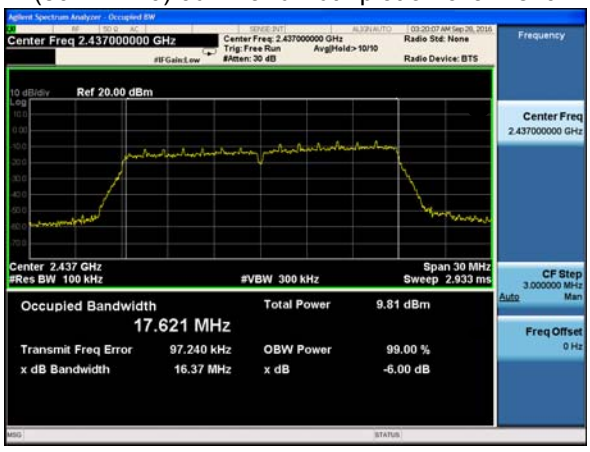
(802.11n20) 6dB Bandwidth plot on channel 1



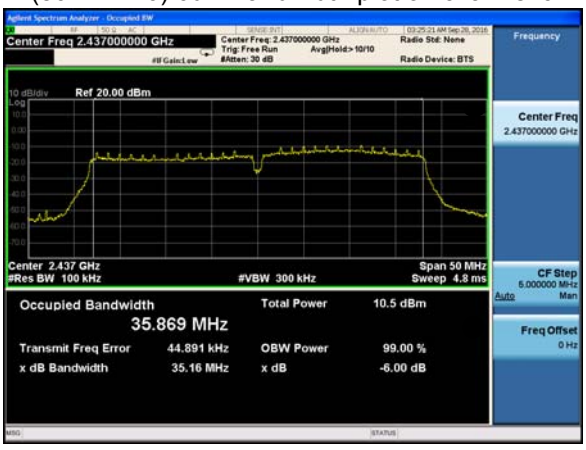
(802.11n40) 6dB Bandwidth plot on channel 3



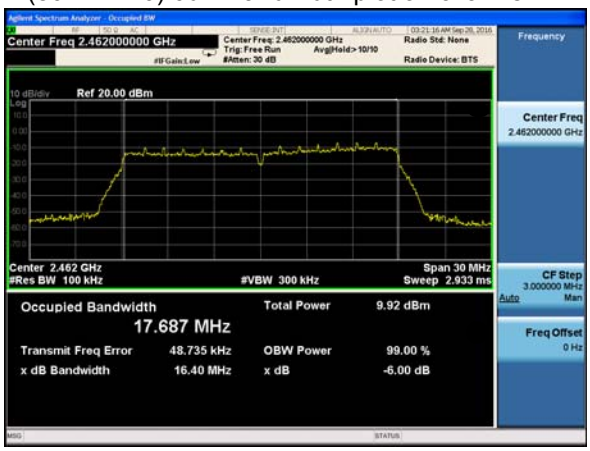
(802.11n20) 6dB Bandwidth plot on channel 6



(802.11n40) 6dB Bandwidth plot on channel 6



(802.11n20) 6dB Bandwidth plot on channel 11



(802.11n40) 6dB Bandwidth plot on channel 9

7.4 20DB BANDWIDTH

7.4.1 Applicable Standard

According to FCC Part 15.247(a)(2) and KDB 558074 DTS 01 Meas. Guidance v03r05

7.4.2 Conformance Limit

N/A

7.4.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.4.4 Test Setup

Please refer to Section 6.1 of this test report.

7.4.5 Test Procedure

The testing follows KDB 558074 DTS 01 Meas. Guidance v03r05
The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
Set to the maximum power setting and enable the EUT transmit continuously.
The EUT was operating in controlled its channel.
Use the following spectrum analyzer settings:
Span = the frequency band of operation
RBW = 300KHz
VBW ≥ 3*RBW
Sweep = auto
Detector function = peak
Trace = max hold

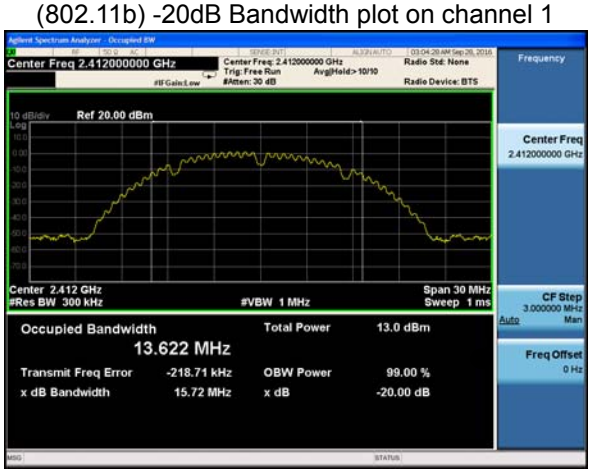
7.4.6 Test Results

EUT:	2 in 1 tablet PC	Model No.:	511
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	TX 802.11b/g/n(20/40M)	Test By:	Lake Xie

Mode	Channel	Frequency (MHz)	-20dB bandwidth (MHz)	Result
802.11b	Low	2412	15.72	Pass
	Middle	2437	16.28	Pass
	High	2462	16.79	Pass
802.11g	Low	2412	18.62	Pass
	Middle	2437	18.98	Pass
	High	2462	19.04	Pass
802.11n20	Low	2412	19.13	Pass
	Middle	2437	19.37	Pass
	High	2462	19.36	Pass
802.11n40	Low	2422	38.30	Pass
	Middle	2437	37.88	Pass
	High	2452	38.23	Pass

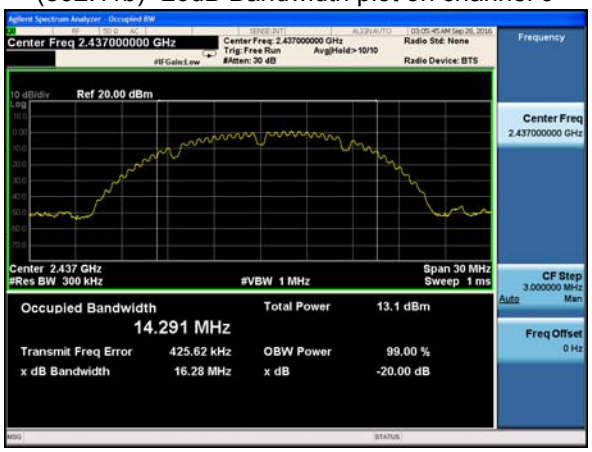
Test plot

(802.11b) -20dB Bandwidth plot on channel 1

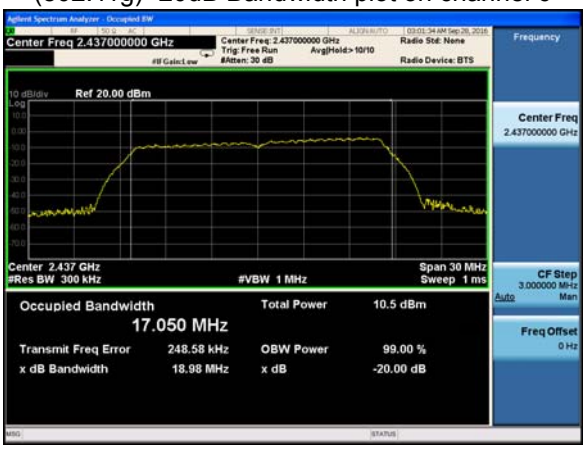


(802.11g) -20dB Bandwidth plot on channel 1

(802.11b) -20dB Bandwidth plot on channel 6



(802.11g) -20dB Bandwidth plot on channel 6



(802.11b) -20dB Bandwidth plot on channel 11

(802.11g) -20dB Bandwidth plot on channel 11

Test plot

(802.11n20) -20dB Bandwidth plot on channel 1

(802.11n40) -20dB Bandwidth plot on channel 3

(802.11n20) -20dB Bandwidth plot on channel 6

(802.11n40) -20dB Bandwidth plot on channel 6

(802.11n20) -20dB Bandwidth plot on channel 11

(802.11n40) -20dB Bandwidth plot on channel 9

7.5 DUTY CYCLE

7.5.1 Applicable Standard

According to KDB 558074)6)b), issued 06/09/2015

7.5.2 Conformance Limit

No limit requirement.

7.5.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.5.4 Test Setup

Please refer to Section 6.1 of this test report.

7.5.5 Test Procedure

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW ⩾ OBW if possible; otherwise, set RBW to the largest available value. Set VBW ⩾ RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if T ⩽ 16.7 microseconds.)

The transmitter output is connected to the Spectrum Analyzer. We tested accroding to the zero-span measurement method, 6.0)b) in KDB 558074(issued 06/09/2015)

The largest availble value of RBW is 8 MHz and VBW is 50 MHz. The zero-span method of measuring duty cycle shall not be used if T ⩽ 6.25 microseconds. (50/6.25 = 8)

The zero-span method was used because all measured T data are > 6.25 microseconds and both RBW and VBW are > 50/T.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
Set to the maximum power setting and enable the EUT transmit continuously.
The EUT was operating in controlled its channel.
Use the following spectrum analyzer settings:
Span = Zero Span
RBW = 8MHz(the largest available value)
VBW = 8MHz (≥ RBW)
Number of points in Sweep >100
Detector function = peak
Trace = Clear write
Measure T_{total} and T_{on}
Calculate Duty Cycle = T_{on} / T_{total} and Duty Cycle Factor=10*log(1/Duty Cycle)

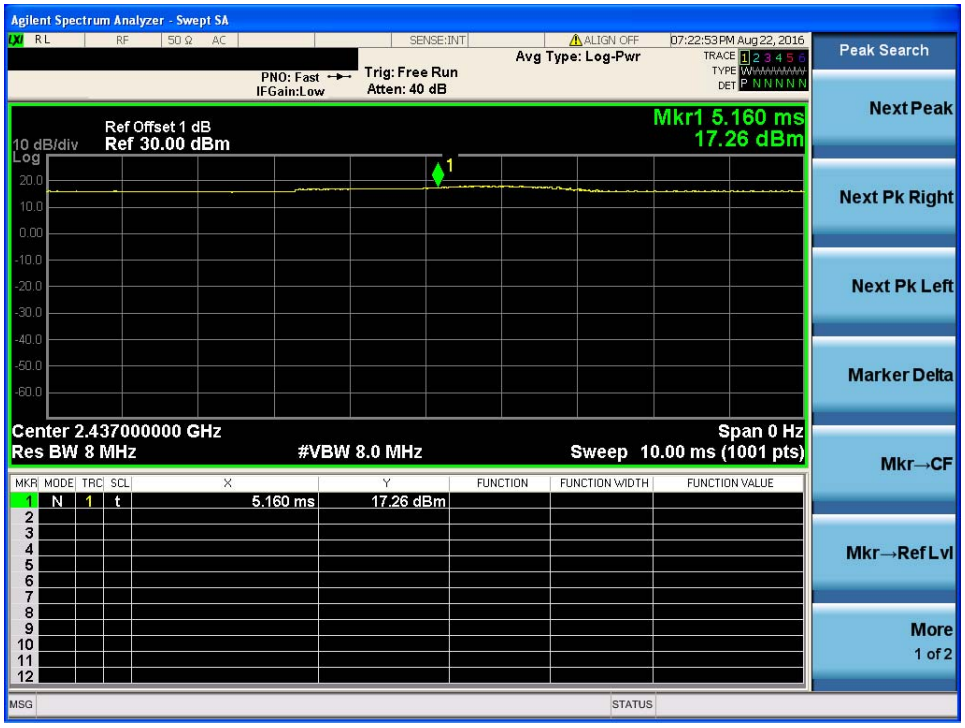
7.5.6 Test Results

EUT:	2 in 1 tablet PC	Model No.:	511
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode1/Mode2/Mode3/Mode4	Test By:	Lake Xie

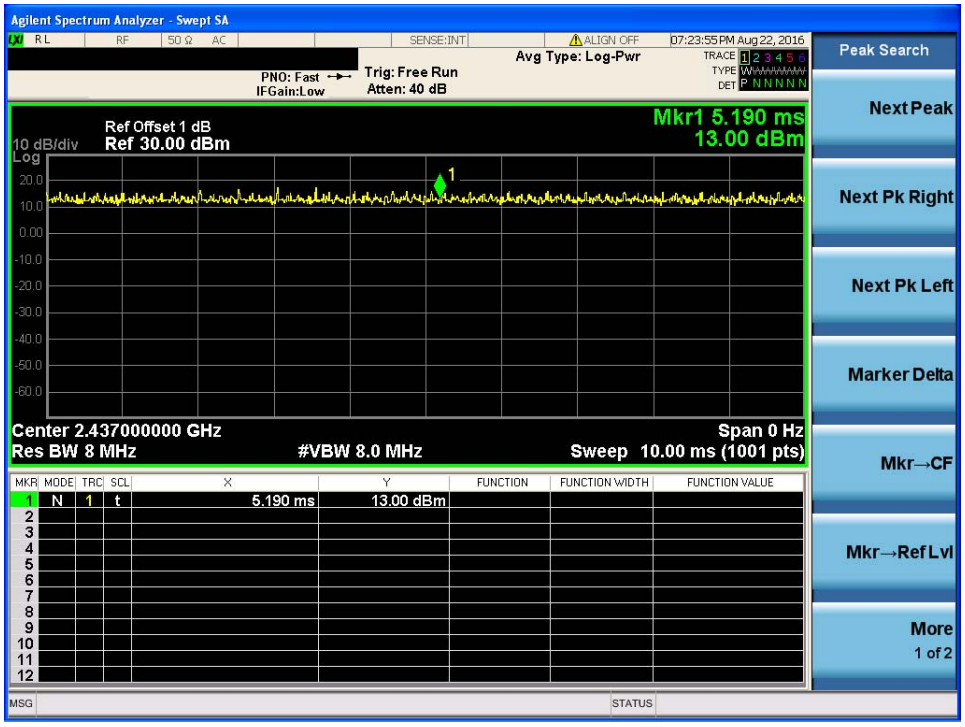
Test Results

Mode	Data rate	Channel	T_{on}	T_{total}	Duty Cycle %	Duty Cycle Factor (dB)	1/T Minimum VBW (kHz)
802.11b	1Mbps	6	-	-	100	0.00	0.01
802.11g	6Mbps	6	-	-	100	0.00	0.01
802.11n HT20	MCS0	6	-	-	100	0.00	0.01
802.11n HT40	MCS0	6	-	-	100	0.00	0.01

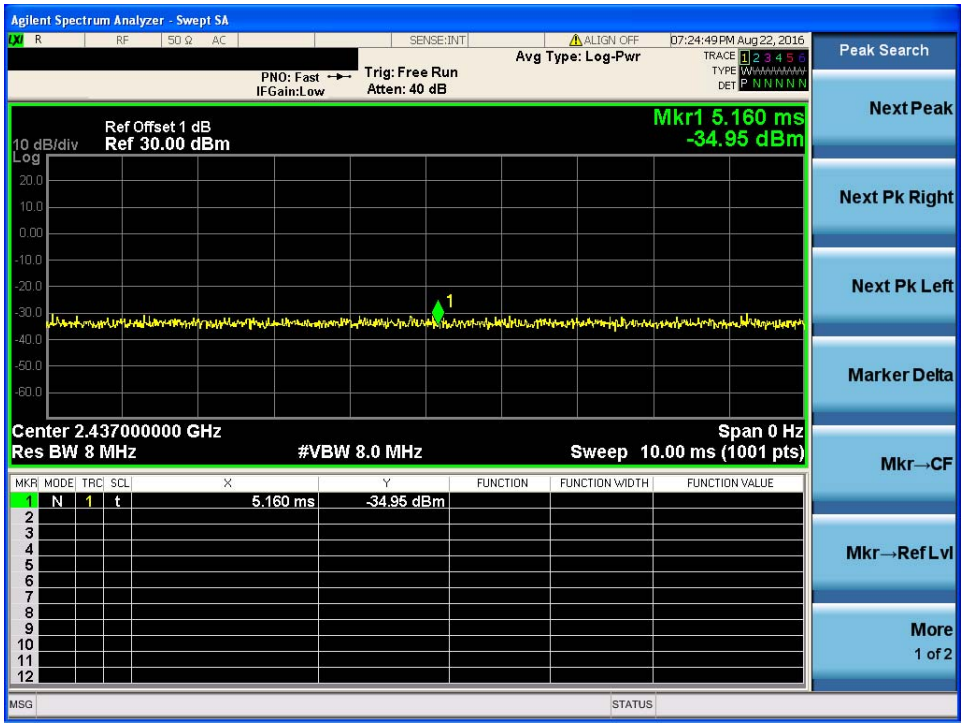
Duty Cycle plot on channel 6	802.11b



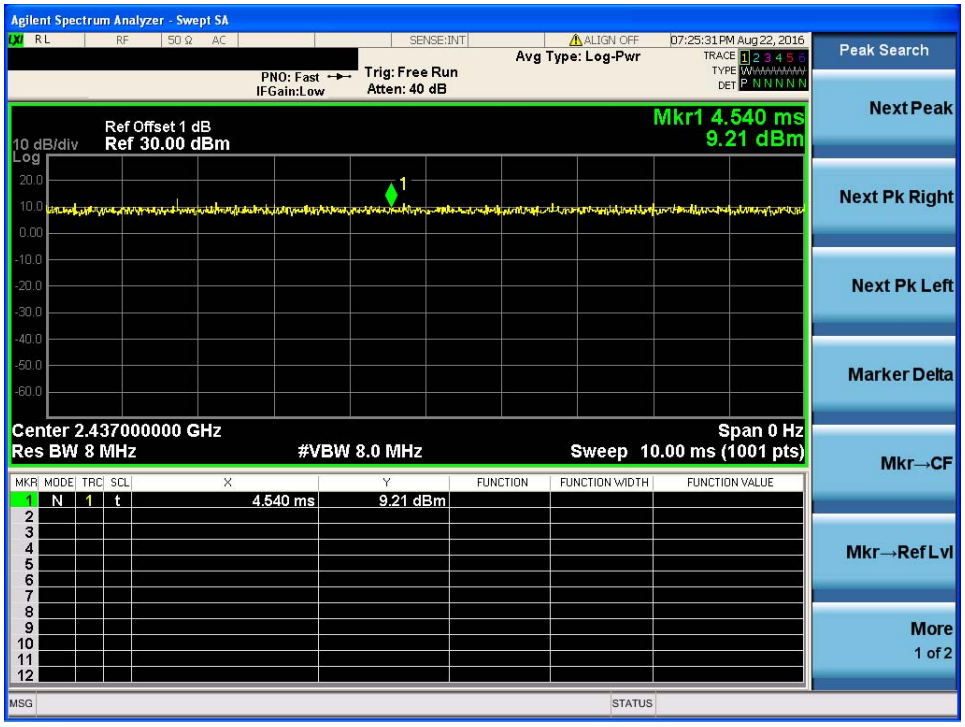
Duty Cycle plot on channel 6	802.11g



Duty Cycle plot on channel 6	802.11n HT20



Duty Cycle plot on channel 6	802.11n HT40



7.6 MAXIMUM OUTPUT POWER

7.6.1 Applicable Standard

According to FCC Part 15.247(b)(3) and KDB 558074 DTS 01 Meas. Guidance v03r05

7.6.2 Conformance Limit

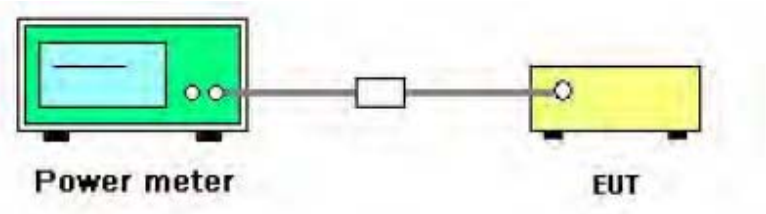
The maximum peak conducted output power of the intentional radiator for systems using digital modulation in the 2400 - 2483.5 MHz bands shall not exceed: 1 Watt (30dBm). If transmitting antenna of directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

7.6.3 Measuring Instruments

The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	Average

7.6.4 Test Setup



7.6.5 Test Procedure

1. Test procedures refer KDB 558074 D01 v03r05 section 9.2.3.2 Measurement using a power meter (PM).
2. Alternatively, measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since this measurement is made only during the ON time of the transmitter, no duty cycle correction is required.

3. Multiple antenna system was performed in accordance with KDB 662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.

7.6.6 EUT opration during Test

The EUT was programmed to be in continuously transmitting mode.

7.6.7 Test Results

EUT:	2 in 1 tablet PC	Model No.:	511
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode1/Mode2/Mode3/Mode4	Test By:	Lake Xie

Mode	Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)	Result
802.11b	Low	2412	8.52	30.00	Pass
	Middle	2437	8.12	30.00	Pass
	High	2462	8.33	30.00	Pass
802.11g	Low	2412	7.82	30.00	Pass
	Middle	2437	7.95	30.00	Pass
	High	2462	7.94	30.00	Pass
802.11n20	Low	2412	7.35	30.00	Pass
	Middle	2437	7.46	30.00	Pass
	High	2462	7.16	30.00	Pass
802.11n40	Low	2422	7.20	30.00	Pass
	Middle	2437	7.26	30.00	Pass
	High	2452	7.12	30.00	Pass

7.7 POWER SPECTRAL DENSITY

7.7.1 Applicable Standard

According to FCC Part 15.247(e) and KDB 558074 DTS 01 Meas. Guidance v03r05

7.7.2 Conformance Limit

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

7.7.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.7.4 Test Setup

Please refer to Section 6.1 of this test report.

7.7.5 Test Procedure

The testing follows Measurement Procedure 10.3 Method AVGPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r05
This procedure may be used when the maximum (average) conducted output power was used to demonstrate compliance to the output power limit. This is the baseline method for determining the maximum (average) conducted PSD level. If the instrument has an RMS power averaging detector, it must be used; otherwise, use the sample detector. The EUT must be configured to transmit continuously (duty cycle ≥ 98%); otherwise sweep triggering/signal gating must be implemented to ensure that measurements are made only when the EUT is transmitting at its maximum power control level (no transmitter off time is to be considered).
The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
Set to the maximum power setting and enable the EUT transmit continuously.
The EUT was operating in controlled its channel.
a) Set instrument center frequency to DTS channel center frequency.
b) Set span to at least 1.5 times the OBW.
c) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz. .
d) Set VBW ≥3 x RBW.
e) Detector = power averaging (RMS) or sample detector (when RMS not available).
f) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
g) Sweep time = auto couple.
h) Employ trace averaging (RMS) mode over a minimum of 100 traces.
i) Use the peak marker function to determine the maximum amplitude level.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducin

7.7.6 Test Results

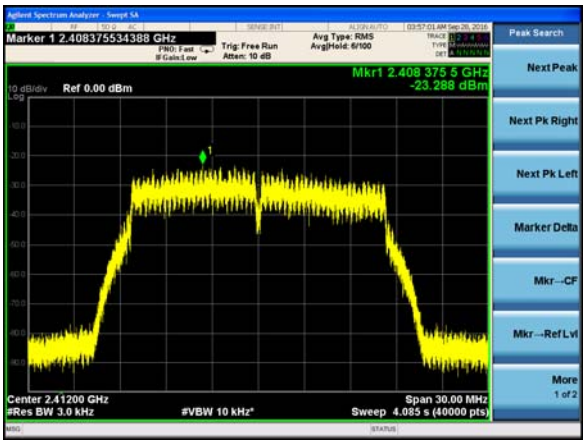
EUT:	2 in 1 tablet PC	Model No.:	511
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode1/Mode2/Mode3/Mode4	Test By:	Lake Xie

Mode	Channel	Frequency (MHz)	Power Density (dBm/3KHz)	Limit (dBm/3KHz)	Result
802.11b	Low	2412	-14.043	8.00	Pass
	Middle	2437	-15.686	8.00	Pass
	High	2462	-13.800	8.00	Pass
802.11g	Low	2412	-23.288	8.00	Pass
	Middle	2437	-21.459	8.00	Pass
	High	2462	-21.273	8.00	Pass
802.11n20	Low	2412	-23.338	8.00	Pass
	Middle	2437	-22.341	8.00	Pass
	High	2462	-21.599	8.00	Pass
802.11n40	Low	2422	-26.69	8.00	Pass
	Middle	2437	-25.99	8.00	Pass
	High	2452	-25.184	8.00	Pass

Test plot

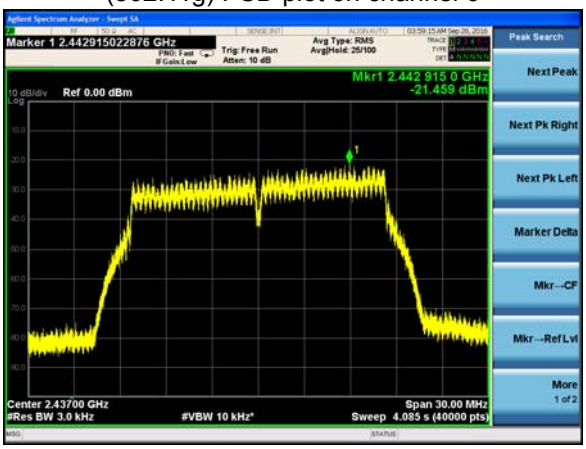
(802.11b) PSD plot on channel 1

(802.11g) PSD plot on channel 1



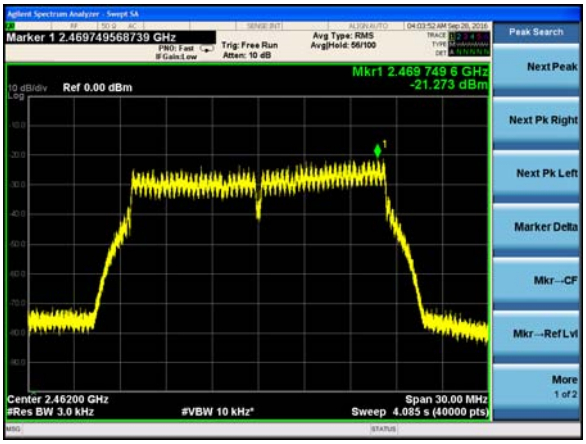
(802.11b) PSD plot on channel 6

(802.11g) PSD plot on channel 6



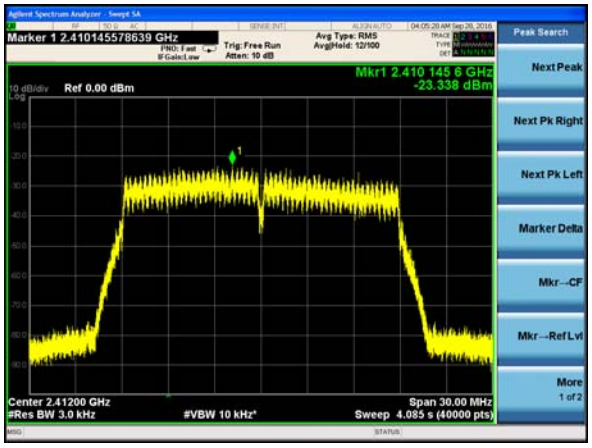
(802.11b) PSD plot on channel 11

(802.11g) PSD plot on channel 11

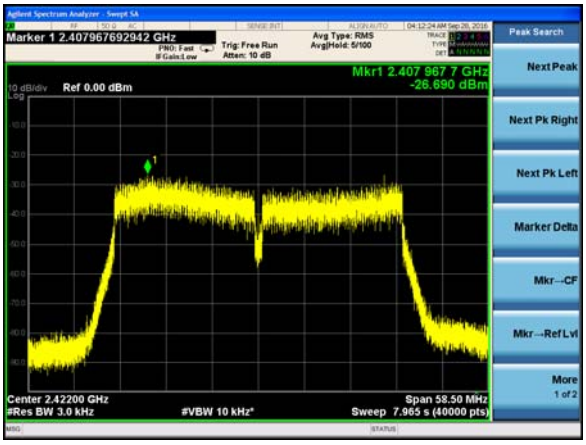


Test plot

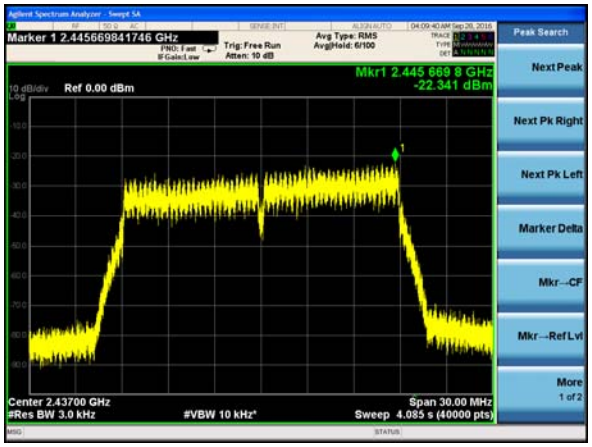
(802.11n20) PSD plot on channel 1



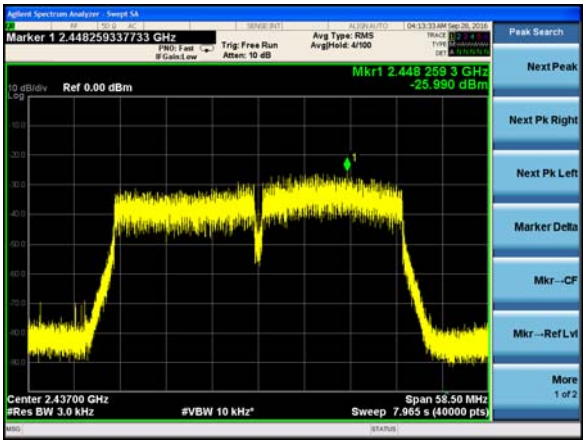
(802.11n40) PSD plot on channel 3



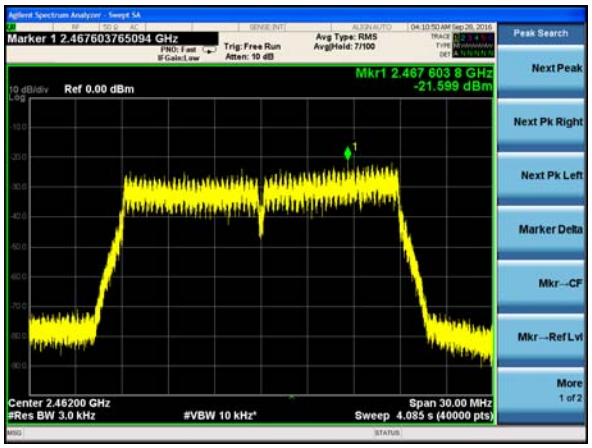
(802.11n20) PSD plot on channel 6



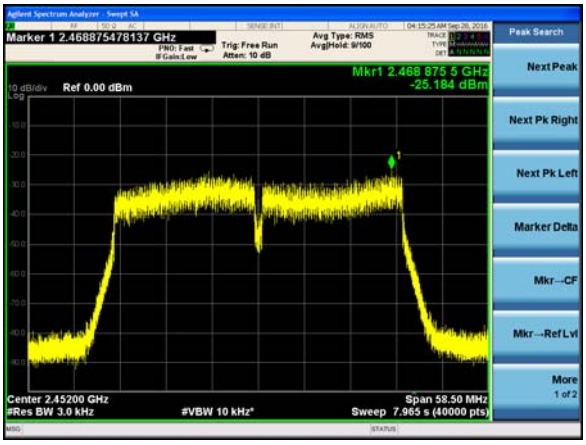
(802.11n40) PSD plot on channel 6



(802.11n20) PSD plot on channel 11



(802.11n40) PSD plot on channel 9



7.8 Emission in non-Restricted Band

7.8.1 Applicable Standard

According to FCC Part 15.247(d) and KDB 558074 DTS 01 Meas. Guidance v03r05

The DTS rules specify that in any 100 kHz bandwidth outside of the authorized frequency band, the power shall be attenuated according to the following conditions:7
a) If the maximum peak conducted output power procedure was used to demonstrate compliance as described in 9.1, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

b) If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).
c) In either case, attenuation to levels below the 15.209 general radiated emissions limits is not required.8 The following procedures shall be used to demonstrate compliance to these limits. Note that these procedures can be used in either an antenna-port conducted or radiated test set-up. Radiated tests must conform to the test site requirements and utilize maximization procedures defined herein.

7.8.2 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.8.3 Test Setup

Reference level measurement
Establish a reference level by using the following procedure:
a) Set instrument center frequency to DTS channel center frequency.
b) Set the span to ≥ 1.5 times the DTS bandwidth.
c) Set the RBW = 100 kHz.
d) Set the VBW ≥ 3 x RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum PSD level.
Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

Emission level measurement
a) Set the center frequency and span to encompass frequency range to be measured.
b) Set the RBW = 100 kHz.
c) Set the VBW ≥ 3 x RBW.
d) Detector = peak.
e) Sweep time = auto couple.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use the peak marker function to determine the maximum amplitude level.
Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in 11.1 a) or 11.1 b). Report the three highest emissions relative to the limit.

7.8.4 Test Results

EUT:	2 in 1 tablet PC	Model No.:	511
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode1/Mode2/Mode3/Mode4	Test By:	Lake Xie

Test plot For (802.11b)

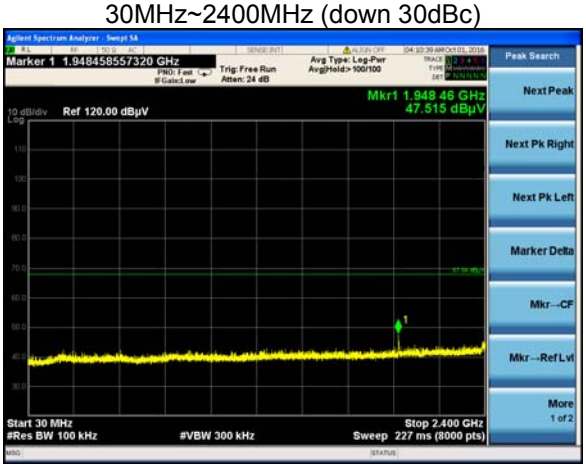
(802.11b) Emission not in Restricted Band plot on channel 1 Reference Level

Configuration IEEE 802.11b / CH 1 / 30MHz~2400MHz (down 30dBc)

Configuration IEEE 802.11b / CH 1 / 2500MHz~26500MHz (down 30dBc)

(802.11b) Emission not in Restricted Band plot on channel 11 Reference Level

Configuration IEEE 802.11b / CH 11 / 30MHz~2400MHz (down 30dBc)



Configuration IEEE 802.11b / CH 11 / 2500MHz~26500MHz (down 30dBc)

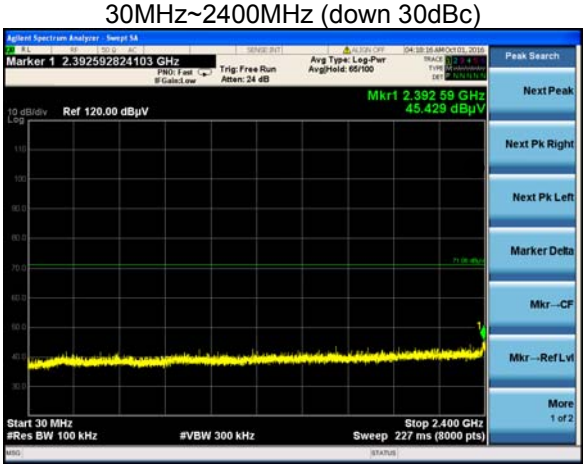
Test plot For (802.11g)

(802.11g) Emission not in Restricted Band plot on channel 1 Reference Level

(802.11g) Emission not in Restricted Band plot on channel 11 Reference Level

Configuration IEEE 802.11g / CH 1 / 30MHz~2400MHz (down 30dBc)

Configuration IEEE 802.11g / CH 11 / 30MHz~2400MHz (down 30dBc)



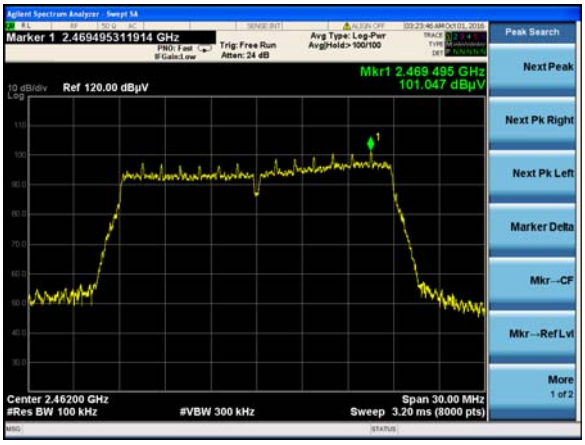
Configuration IEEE 802.11g / CH 1 / 2500MHz~26500MHz (down 30dBc)

Configuration IEEE 802.11g / CH 11 / 2500MHz~26500MHz (down 30dBc)

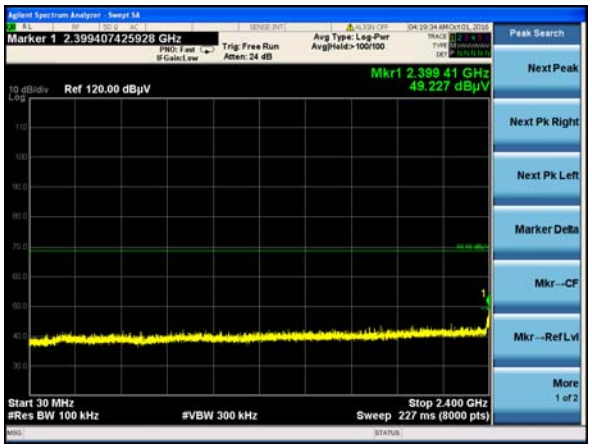
Test plot For (802.11n20)

(802.11n20) Emission not in Restricted Band plot on channel 1 Reference Level

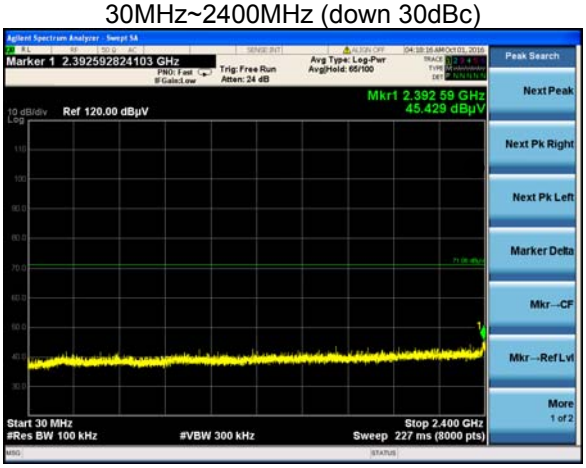
(802.11n20) Emission not in Restricted Band plot on channel 11 Reference Level



Configuration IEEE 802.11n20 / CH 1 / 30MHz~2400MHz (down 30dBc)



Configuration IEEE 802.11n20 / CH 11 / 30MHz~2400MHz (down 30dBc)



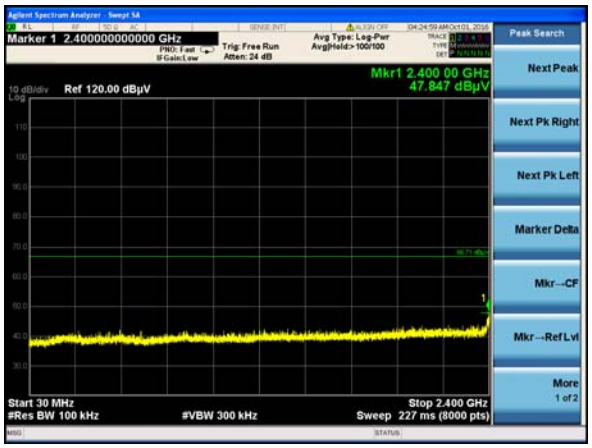
Configuration IEEE 802.11n20 / CH 1 / 2500MHz~26500MHz (down 30dBc)

Configuration IEEE 802.11n20 / CH 11 / 2500MHz~26500MHz (down 30dBc)

Test plot For (802.11n40)

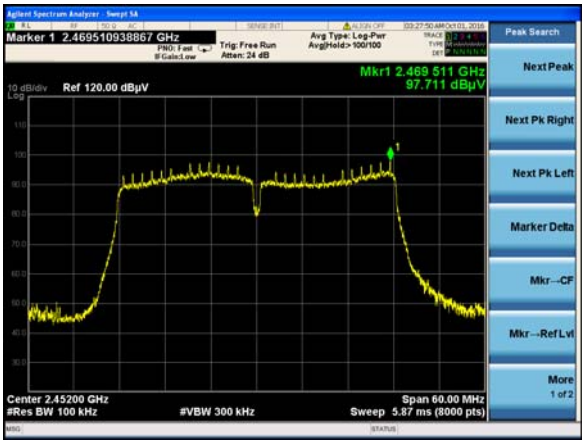
(802.11n40) Emission not in Restricted Band plot on channel 3 Reference Level

Configuration IEEE 802.11n40 / CH 3 / 30MHz~2400MHz (down 30dBc)

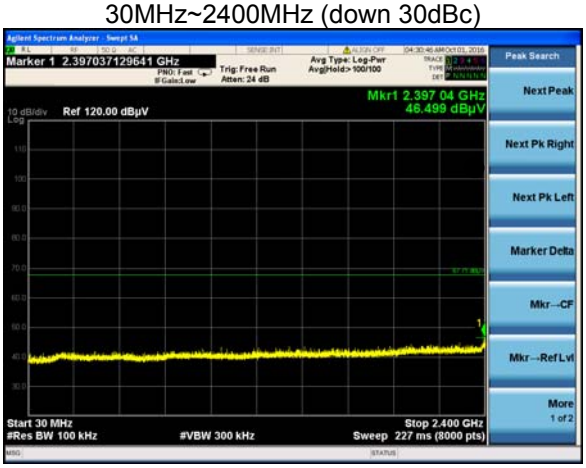


Configuration IEEE 802.11n20 / CH 3 / 2500MHz~26500MHz (down 30dBc)

(802.11n40) Emission not in Restricted Band plot on channel 9 Reference Level



Configuration IEEE 802.11n40 / CH 9 / 30MHz~2400MHz (down 30dBc)



Configuration IEEE 802.11n20 / CH 9 / 2500MHz~26500MHz (down 30dBc)

7.9 ANTENNA APPLICATION

7.9.1 Antenna Requirement

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

7.9.2 Result

The EUT antenna is FPCB antenna. It comply with the standard requirement.

END OF REPORT