FCC RADIO TEST REPORT
FCC ID:LNQSBT200DI

Product : Wireless LAN equipment

Trade Name : Actiontec

Model Name : SBT200DI

Serial Model : N/A

Report No. : NTEK-2016NT08308666F2

Prepared for

Actiontec Electronics Inc

760 North Mary Ave.,Sunnyvale, CA 94086,USA

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name ..... Actiontec Electronics Inc

Address ..... 760 North Mary Ave., Sunnyvale, CA 94086 USA

Manufacture's Name... Actiontec Electronics Inc

Address ..... 760 North Mary Ave., Sunnyvale, CA 94086 USA

Product description

Product name ..... Wireless LAN equipment

Model and/or type reference SBT200DI

Serial Model ..... N/A

Standards ..... FCC Part15.407: 23 Sep. 2016

Test procedure ..... ANSI C63.10-2013 and KDB 789033 D02 General UNII Test Procedures New Rules v01r01
FCC KDB 662911 D01 Multiple Transmitter Output v01
FCC KDB 662911 D02 MIMO With Cross Polarized Antenna V01

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements/ the Industry Canada requirements.. And it is applicable only to the tested sample identified in the report.

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Date of Test .....

Date (s) of performance of tests ..... 30 Aug. 2016 ~ 28 Sep. 2016

Date of Issue ..... 29 Sep. 2016

Test Result ..... **Pass**

Testing Engineer : Lebron Wang

(Lebron Wang)

Technical Manager : Jason chen

(Jason Chen)

Authorized Signatory : Sam. Chen

(Sam Chen)

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Revision History

Report No.	Version	Description	Issued Date
NTEK-2016NT08308666F2	Rev.01	Initial issue of report	Sep 29, 2016

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.407) , Subpart E			
Standard Section	Test Item	Judgment	Remark
15.207	AC Power Line Conducted Emissions	PASS	
15.209(a), 15.407 (b)(1) 15.407 (b)(4) 15.407 (b)(6)	Spurious Radiated Emissions	PASS	
15.407 (a)(1) 15.407 (a)(3) 15.1049	26 dB and 99% Emission Bandwidth	PASS	
15.407(e)	Minimum 6 dB bandwidth	PASS	
15.407 (a)(1) 15.407 (a)(3)	Maximum Conducted Output Power	PASS	
2.1051, 15.407(b)(1) 15.407(b)(4)	Band Edge	PASS	
15.407 (a)(1) 15.407 (a)(3)	Power Spectral Density	PASS	
2.1051, 15.407(b)	Spurious Emissions at Antenna Terminals	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd
Add.:1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.
FCC Registration No.:238937; IC Registration No.:9270A-1
CNAS Registration No.:L5516

1.2 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%

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Wireless LAN equipment	
Trade Name	Actiontec	
Model Name	SBT200DI	
FCC ID	LNQSBT200DI	
Product Description	IEEE 802.11 WLAN Mode Supported	☒802.11a/n/ac(20MHz channel bandwidth) ☒802.11n/ac(40MHz channel bandwidth) ☒802.11ac(80MHz channel bandwidth)
	Data Rate	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS7; 802.11ac(VHT20): NSS1, MCS0-MCS8 802.11ac(VHT40/VHT80):NSS1, MCS0-MCS9
	Modulation	OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac;
	Operating Frequency Range	☒5180-5240MHz for 802.11a/n(HT20)/ac20; 5190-5230MHz for 802.11n(HT40)/ac40; 5210MHz for 802.11 ac80; ☒5745-5825 MHz for 802.11a/n(HT20)/ac20; 5755-5795 MHz for 802.11a/n(HT40)/ac40; 5775MHz for 802.11 ac80;
	Number of Channels	☒4 channels for 802.11a/n20/ac20 in the 5180-5240MHz band ; 2 channels for 802.11 n40/ac40 in the 5190-5230MHz band ; 1 channels for 802.11 ac80 in the 5210MHz band ; ☒5 channels for 802.11a/n20/ac20 in the 5745-5825MHz band ; 2 channels for 802.11 n40/ac40 in the 5755-5795MHz band ; 1 channels for 802.11 ac80 in the 5775MHz band ;
	Antenna Type	metal PIFA antenna
	Antenna Gain	4.71dBi
	Based on the application, features, or specification exhibited in User's Manual, More details of EUT technical specification, please refer to the User's Manual.	
Ratings	DC 5V from PC	
Adapter	N/A	
Battery	N/A	
Connecting I/O Port(s)	Please refer to the User's Manual	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. Frequency and Channel list for 802.11a/n(20MHz) band I (5180-5240MHz):

802.11a/n/ac(20MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220	-	-	-	-
40	5200	48	5240	-	-	-	-

Frequency and Channel list for 802.11n(40MHz) band I (5190-5230MHz):

802.11n /ac(40MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	-	-	-	-	-	-
46	5230	-	-	-	-	-	-

802.11ac (80MHz) Carrier Frequency Channel	
Channel	Frequency (MHz)
42	5210

Frequency and Channel list for 802.11a/n(20 MHz) band IV (5745-5825MHz):

802.11a/n/ac(20 MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

Frequency and Channel list for 802.11n(40MHz) band IV (5755-5795MHz):

802.11n/ac 40MHz Carrier Frequency Channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795	-	-

802.11ac 80MHz Carrier Frequency Channel	
Channel	Frequency (MHz)
155	5775

2.2 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.

Pretest Mode	Description
Mode 1	Normal Link Mode
Mode 2	802.11a / n/ ac 20 CH36/ CH40/ CH 48 802.11a /n/ ac 20 CH149/ CH157/ CH 165
Mode 3	802.11n/ ac40 CH38/ CH 46 802.11n/ ac40 CH 151 / CH 159
Mode 4	802.11 ac80 CH 155

For Radiated Emission	
Final Test Mode	Description
Mode 1	Normal Link Mode
Mode 2	802.11a / n/ ac 20 CH36/ CH40/ CH 48 802.11a /n/ ac 20 CH149/ CH157/ CH 165
Mode 3	802.11n/ ac40 CH38/ CH 46 802.11n/ ac40 CH 151 / CH 159
Mode 4	802.11 ac80 CH 155

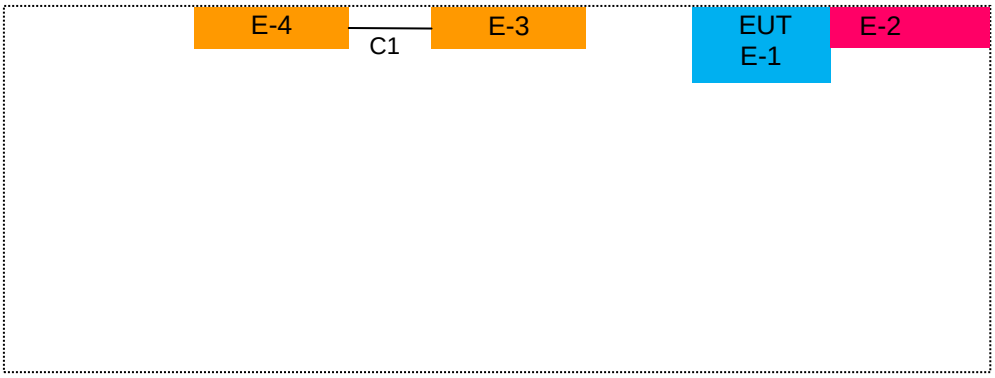
Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

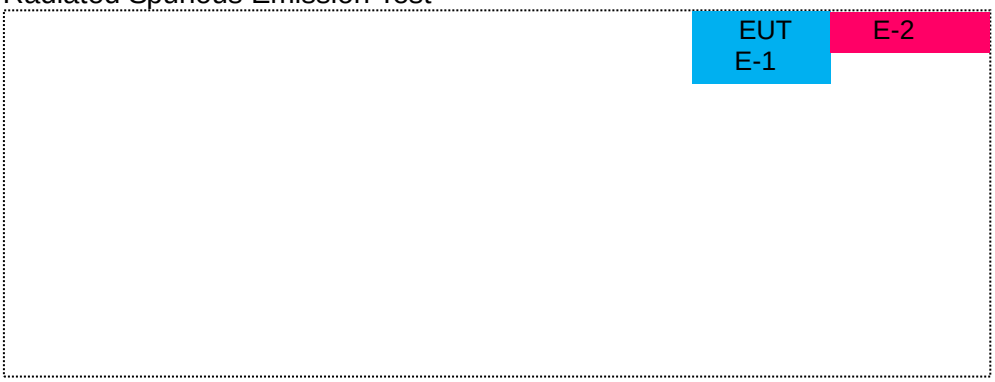
(2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

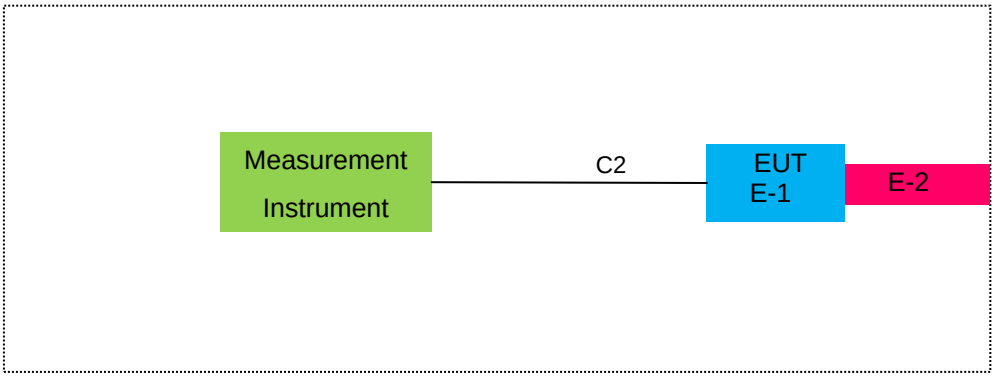
For AC Conducted Emission Mode



Radiated Spurious Emission Test



For Conducted Test Cases



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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	Brand	Model/Type No.	Series No.	Note
E-1	Wireless LAN equipment	Actiontec	SBT200DI	LNQSBT200DI	EUT
E-2	Notebook PC	LENOVO	E450	N/A	Peripherals
E-3	Test fixture	N/A	SBWD100B	N/A	Peripherals
E-4	Monitor	SONY	KDL-24EX520	N/A	Peripherals

Item	Cable Type	Shielded Type	Ferrite Core	Length	Note
C-1	HDMI Cable	YES	NO	1.0m	
C-2	RF Cable	NO	NO	0.5m	

Note:

(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.

2.5 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	2015.08.24	2016.08.23	1 year
3	LISN	EMCO	3816/2	00042990	2015.08.24	2016.08.23	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.

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class B (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	56.00	46.00	CISPR
5.0 -30.0	60.00	50.00	CISPR

0.15 -0.5	66 - 56 *	56 - 46 *	FCC/ RSS-247
0.50 -5.0	56.00	46.00	FCC/ RSS-247
5.0 -30.0	60.00	50.00	FCC/ RSS-247

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

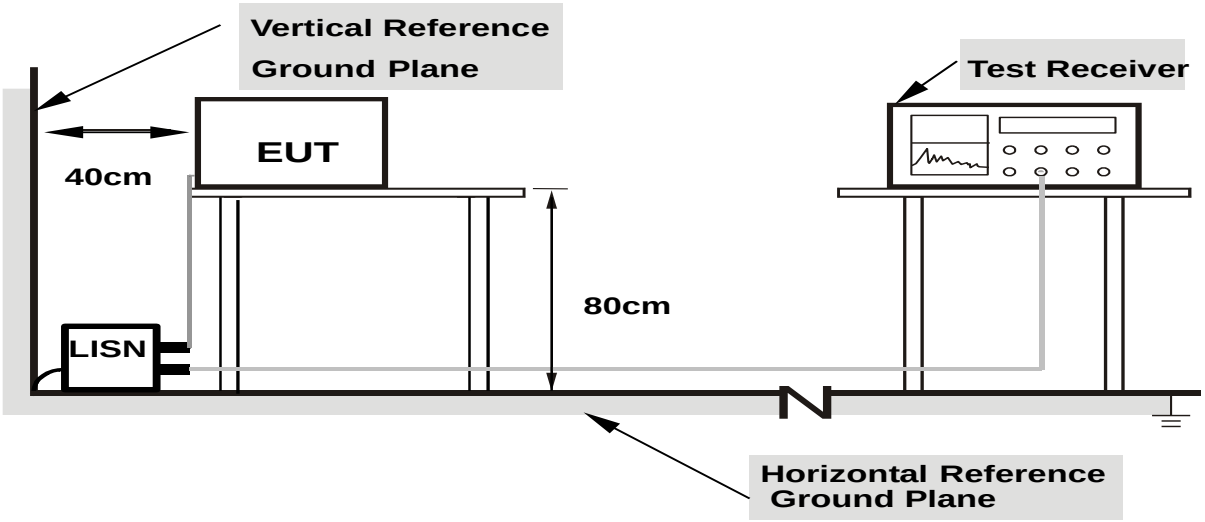
3.1.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected 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.
b. 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 40 cm long.
c. 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.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

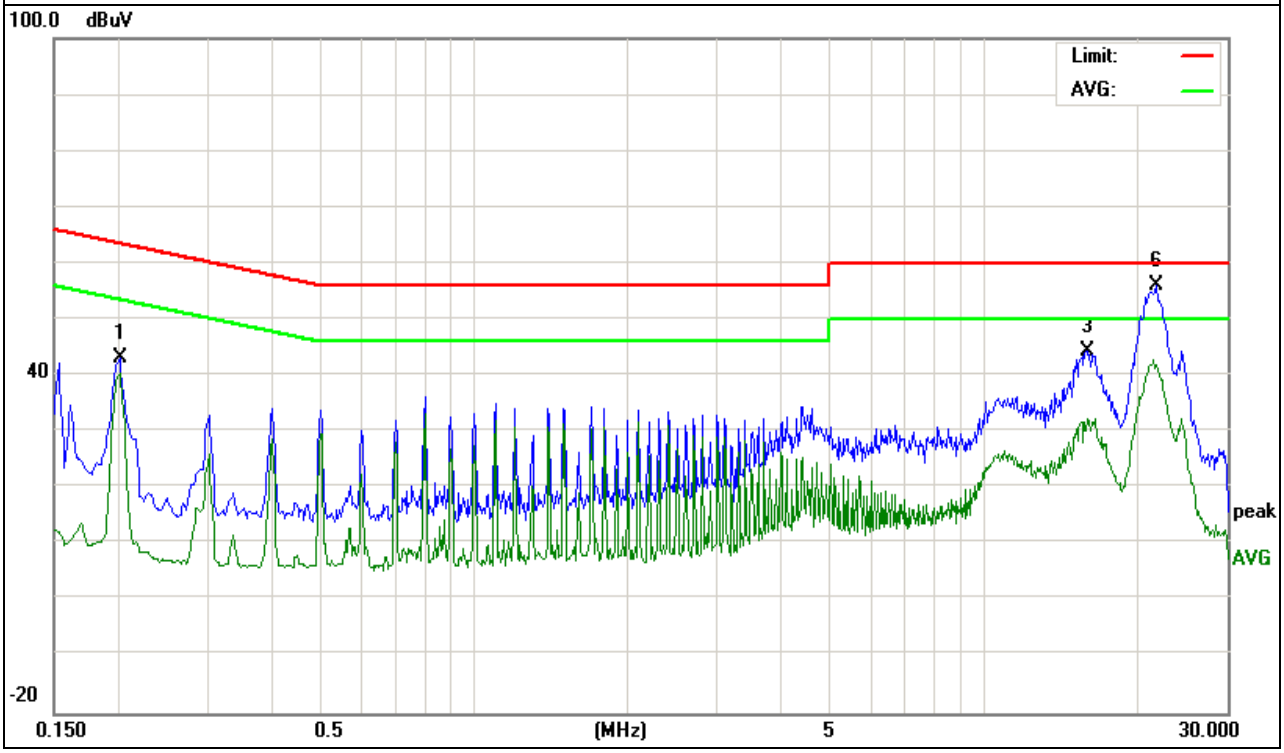
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

EUT :	Wireless LAN equipment	Model Name. :	SBT200DI
Temperature :	26 ℃	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V From PC AC 120V/60Hz	Test Mode :	Normal Link mode

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.2020	32.92	10.13	43.05	63.52	-20.47	QP
0.2020	30.42	10.13	40.55	53.52	-12.97	AVG
15.9259	34.48	10.00	44.48	60.00	-15.52	QP
15.9259	22.35	10.00	32.35	50.00	-17.65	AVG
21.5139	32.62	10.11	42.73	50.00	-7.27	AVG
21.7899	45.87	10.11	55.98	60.00	-4.02	QP

Remark:

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

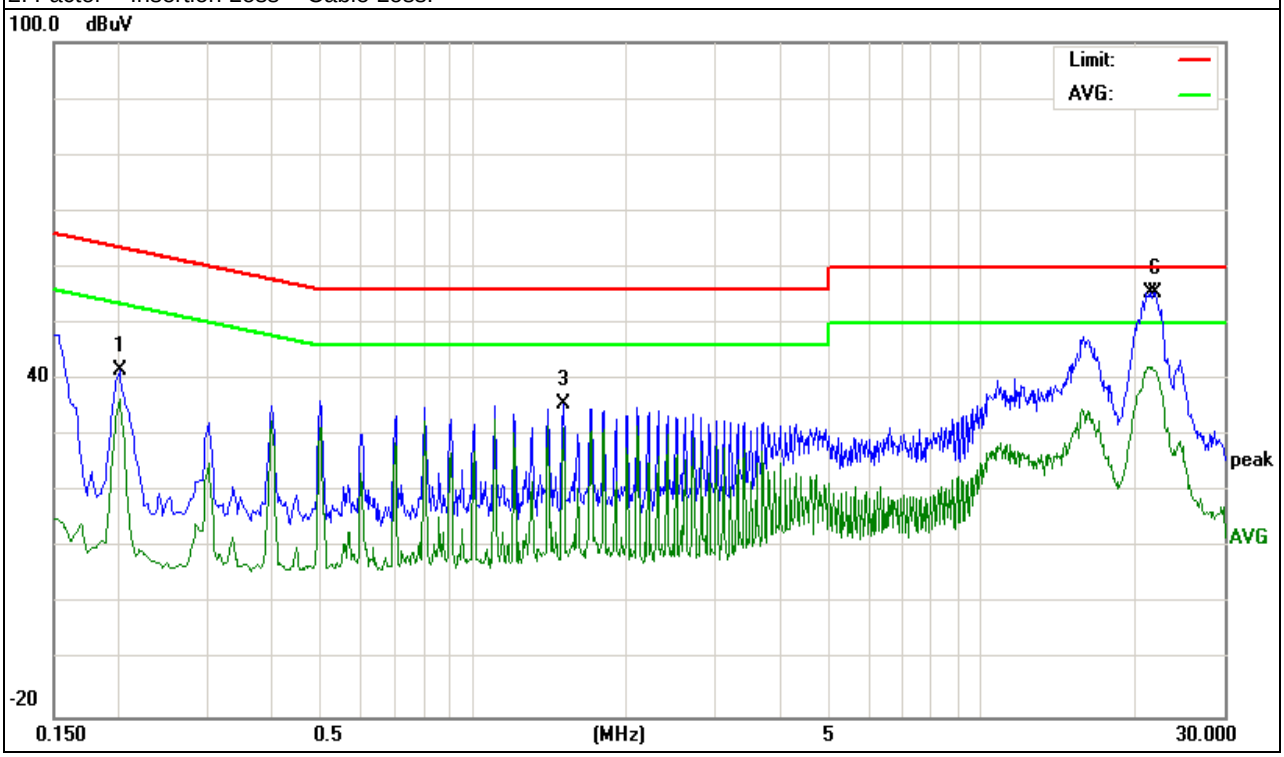


EUT：	Wireless LAN equipment	Model Name. ：	SBT200DI
Temperature：	26 ℃	Relative Humidity：	56%
Pressure：	1010hPa	Phase：	N
Test Voltage ：	DC 5V From PC AC 120V/60Hz	Test Mode：	Normal Link Mode

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.2020	31.51	10.02	41.53	63.52	-21.99	QP
0.2020	26.60	10.02	36.62	53.52	-16.90	AVG
1.5060	25.69	9.83	35.52	56.00	-20.48	QP
1.5060	21.58	9.83	31.41	46.00	-14.59	AVG
21.4020	32.26	10.09	42.35	50.00	-7.65	AVG
22.0259	45.32	10.09	55.41	60.00	-4.59	QP

Remark:

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

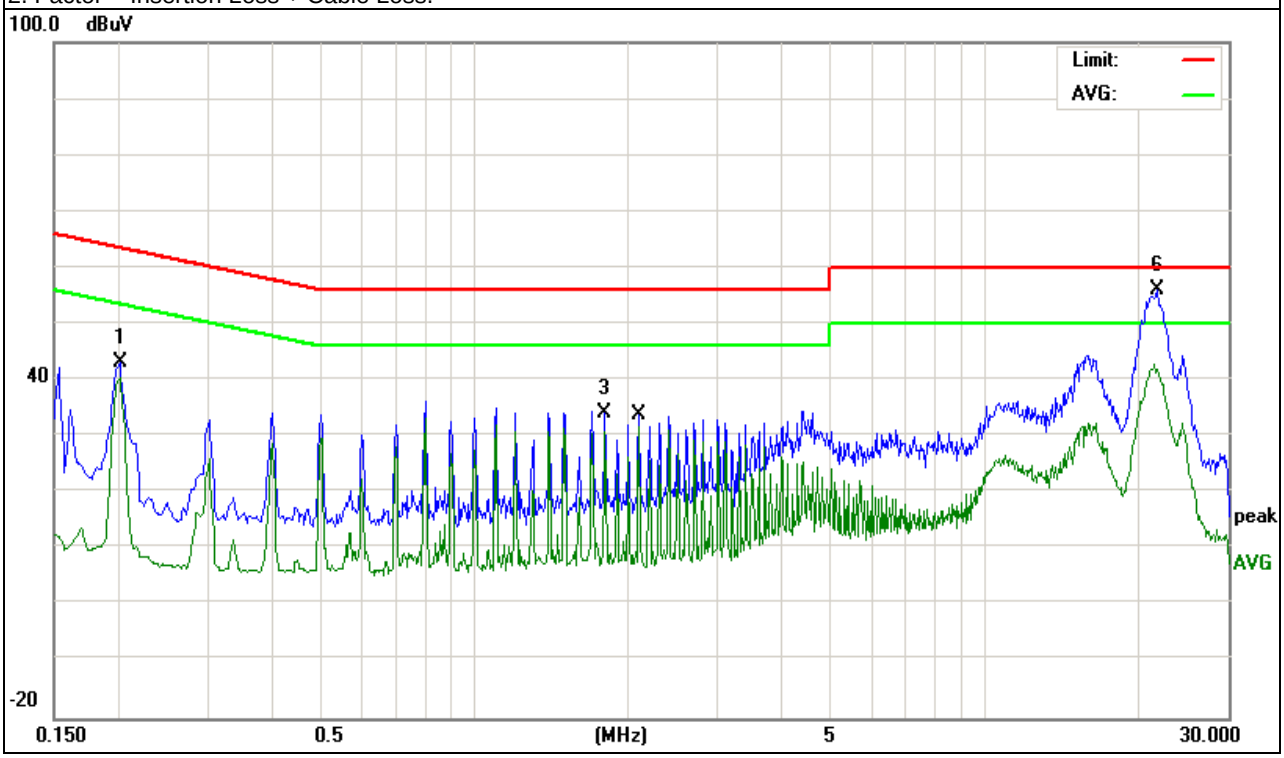


EUT：	Wireless LAN equipment	Model Name. ：	SBT200DI
Temperature：	26 ℃	Relative Humidity：	56%
Pressure：	1010hPa	Phase：	L
Test Voltage ：	DC 5V From PC AC 240V/60Hz	Test Mode：	Normal Link mode

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.2020	32.92	10.13	43.05	63.52	-20.47	QP
0.2020	30.42	10.13	40.55	53.52	-12.97	AVG
1.8020	24.38	9.78	34.16	56.00	-21.84	QP
2.1060	21.92	9.76	31.68	46.00	-14.32	AVG
21.5140	32.62	10.11	42.73	50.00	-7.27	AVG
21.7900	45.87	10.11	55.98	60.00	-4.02	QP

Remark:

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

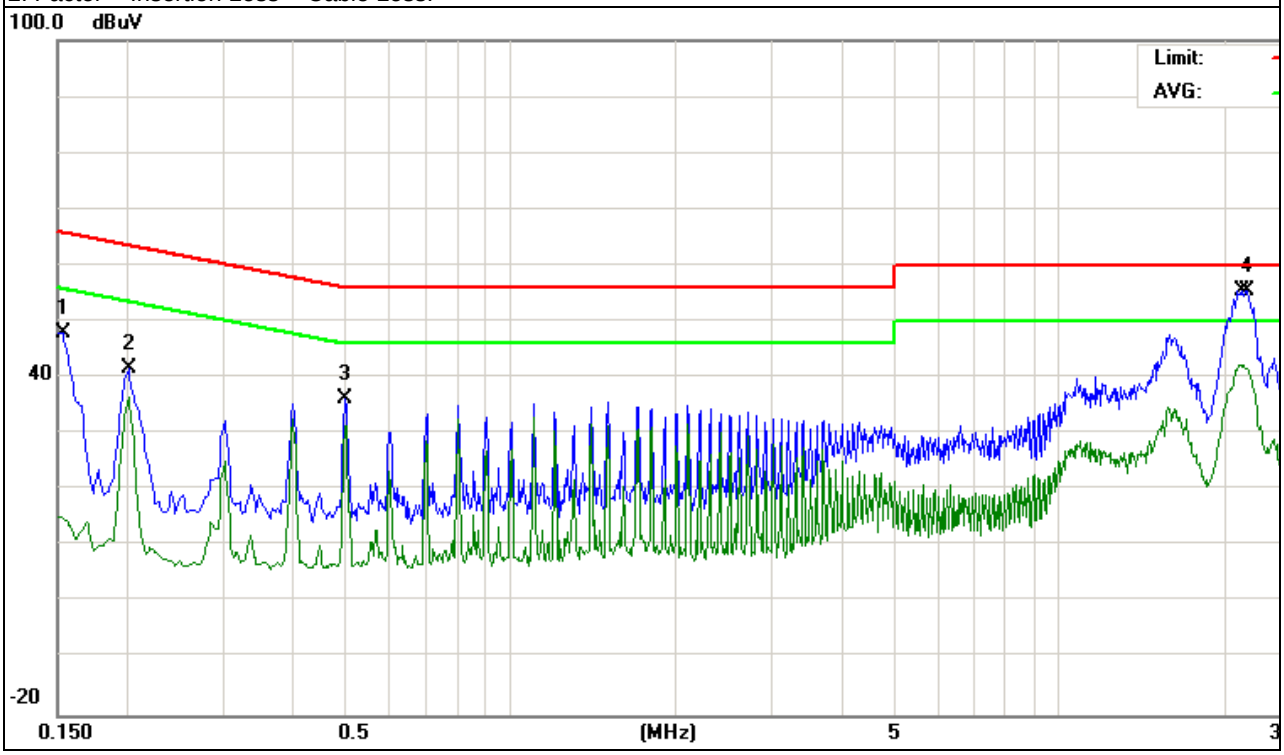


EUT：	Wireless LAN equipment	Model Name. ：	SBT200DI
Temperature：	26 ℃	Relative Humidity：	56%
Pressure：	1010hPa	Phase：	N
Test Voltage ：	DC 5V From PC AC 240V/60Hz	Test Mode：	Normal Link mode

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1539	37.90	10.08	47.98	65.78	-17.80	QP
0.2020	31.51	10.02	41.53	63.52	-21.99	QP
0.2020	26.60	10.02	36.62	53.52	-16.90	AVG
0.5020	26.35	9.83	36.18	56.00	-19.82	QP
0.5020	21.63	9.83	31.46	46.00	-14.54	AVG
21.4020	32.26	10.09	42.35	50.00	-7.65	AVG
22.0260	45.32	10.09	55.41	60.00	-4.59	QP

Remark:

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



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 APPLICABLE STANDARD

According to FCC Part 15.407(d) and 15.209

3.2.2 CONFORMANCE LIMIT

According to FCC Part 15.407(b)(7): 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

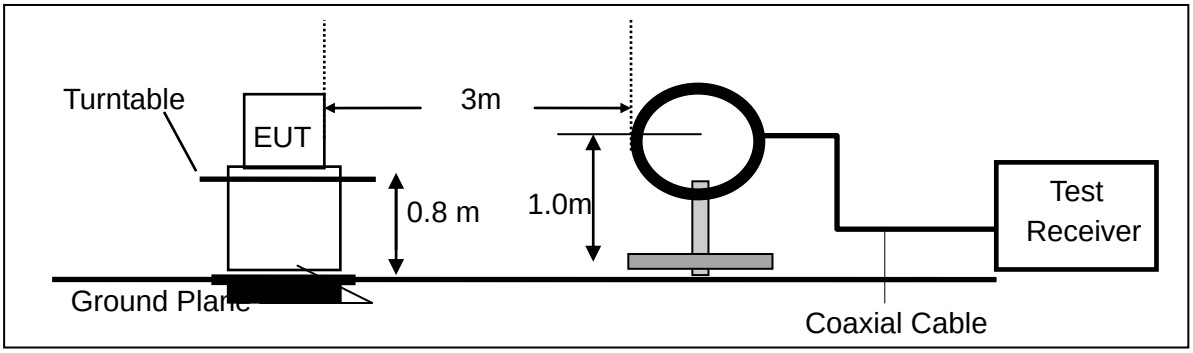
Remark :1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.

3.2.3 MEASURING INSTRUMENTS

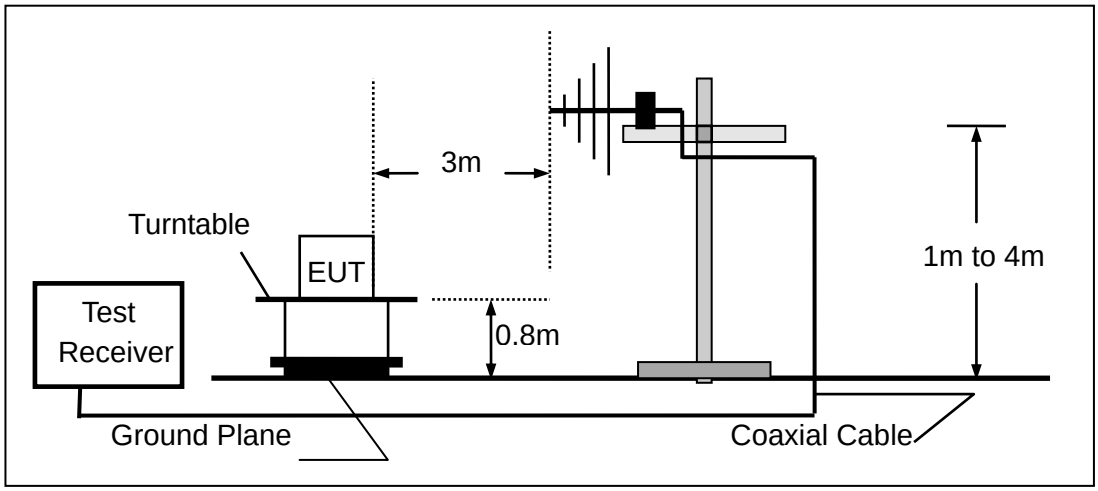
The Measuring equipment is listed in the section 6.3 of this test report.

3.2.4 TEST CONFIGURATION

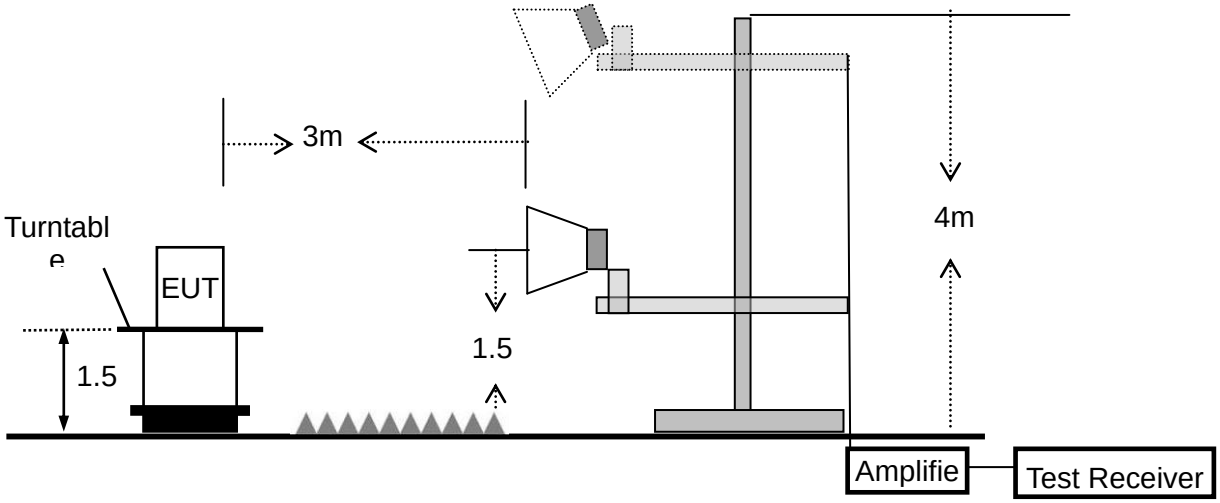
(a) For radiated emissions below 30MHz



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



(c) For radiated emissions above 1000MHz



3.2.5 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. For frequencies above 1GHz, any suitable measuring distance may be used.
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. 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.
e. 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.
f. 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.

3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

EUT：	Wireless LAN equipment	Model Name. :	SBT200DI
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V
Test Mode ：	TX	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	N/A
--	--	--	--	N/A

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

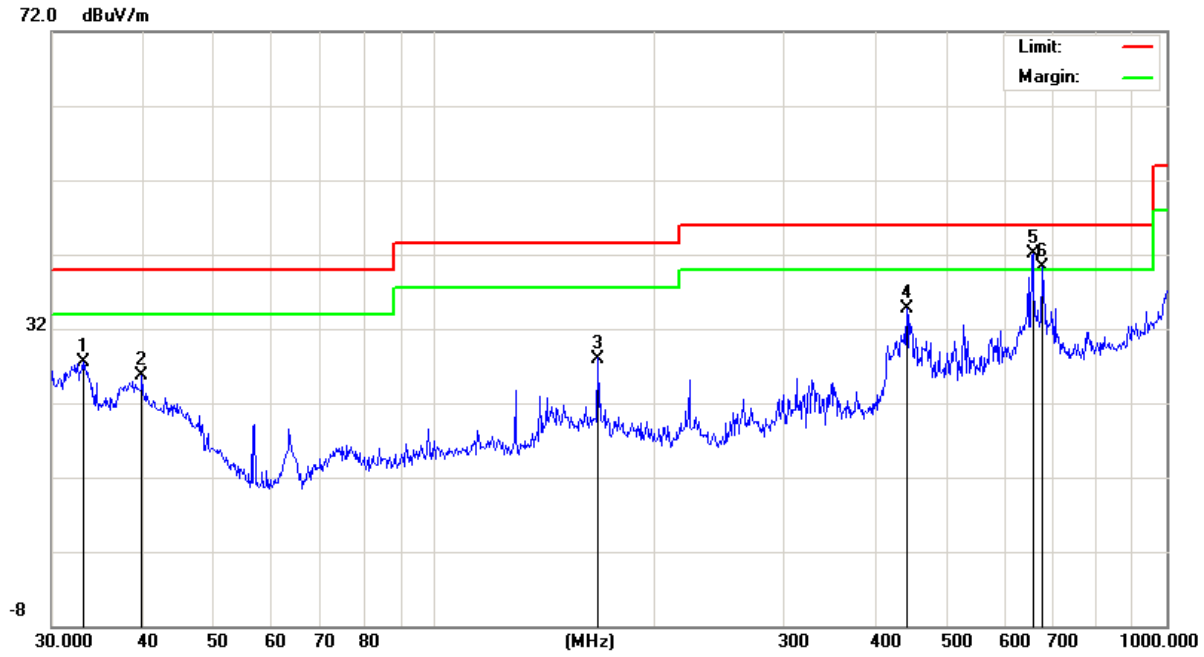
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

EUT：	Wireless LAN equipment	Model Name. ：	SBT200DI
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V
Test Mode ：	TX(5.2G)- 802.11a (High CH)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	34.0949	9.36	18.13	27.49	40.00	-12.51	QP
V	40.8541	11.14	14.64	25.78	40.00	-14.22	QP
V	168.2365	15.80	12.11	27.91	43.50	-15.59	QP
V	448.7428	18.86	15.78	34.64	46.00	-11.36	QP
V	654.5295	21.67	20.52	42.19	46.00	-3.81	QP
V	680.5725	19.49	20.80	40.29	46.00	-5.71	QP

Remark:

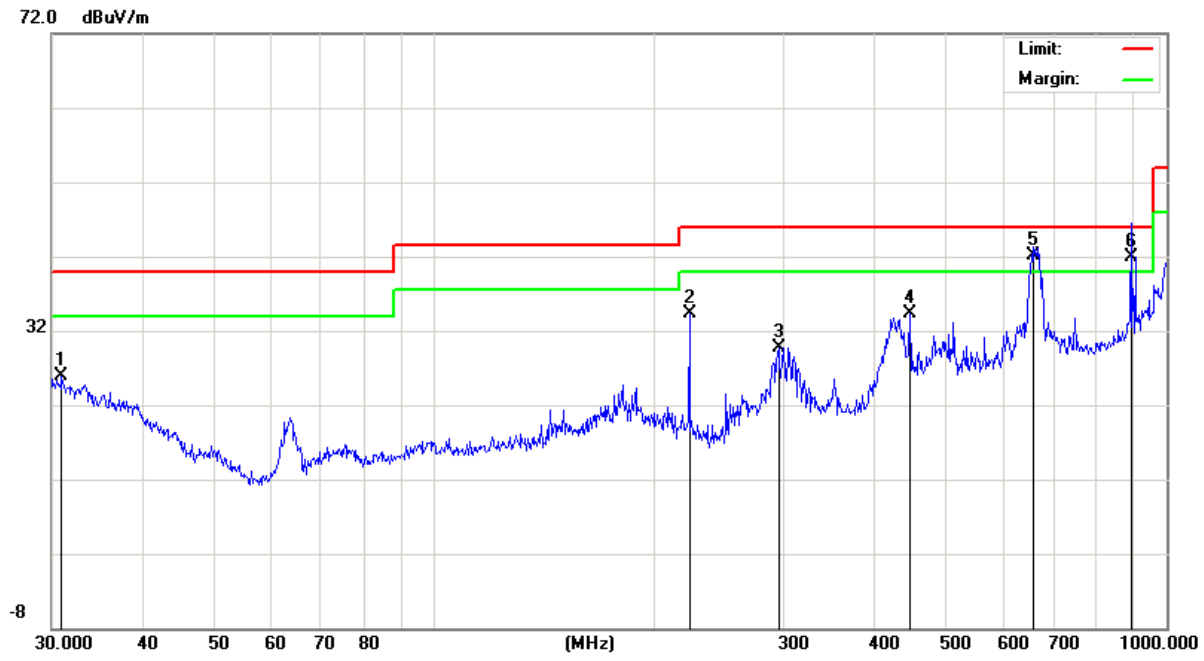
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	32.9616	6.65	19.22	25.87	40.00	-14.13	QP
H	225.9501	23.42	10.89	34.31	46.00	-11.69	QP
H	296.1475	17.45	12.45	29.9	46.00	-16.1	QP
H	448.4158	18.01	15.91	33.92	46.00	-12.08	QP
H	655.8264	22.52	20.59	43.11	46.00	-2.89	QP
H	894.8468	18.95	24.05	43.00	46.00	-3.00	QP

Remark:

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

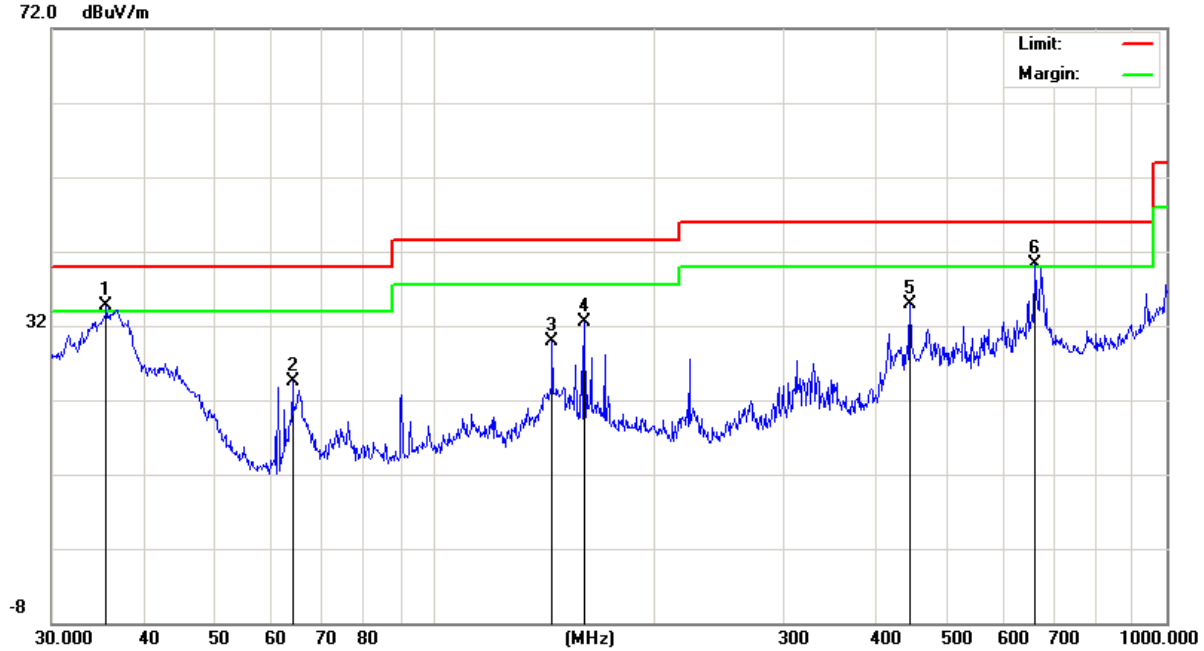


EUT :	Wireless LAN equipment	Model Name. :	SBT200DI
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5V
Test Mode :	TX(5.8G) - 802.11a (High CH)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	35.8550	17.56	17.06	34.62	40.00	-5.38	QP
V	63.7827	18.98	5.64	24.62	40.00	-15.38	QP
V	144.5718	18.65	11.27	29.92	43.50	-13.58	QP
V	160.6454	21.04	11.45	32.49	43.50	-11.01	QP
V	446.5641	19.03	15.91	34.94	46.00	-11.06	QP
V	661.1803	19.55	20.65	40.20	46.00	-5.8	QP

Remark:

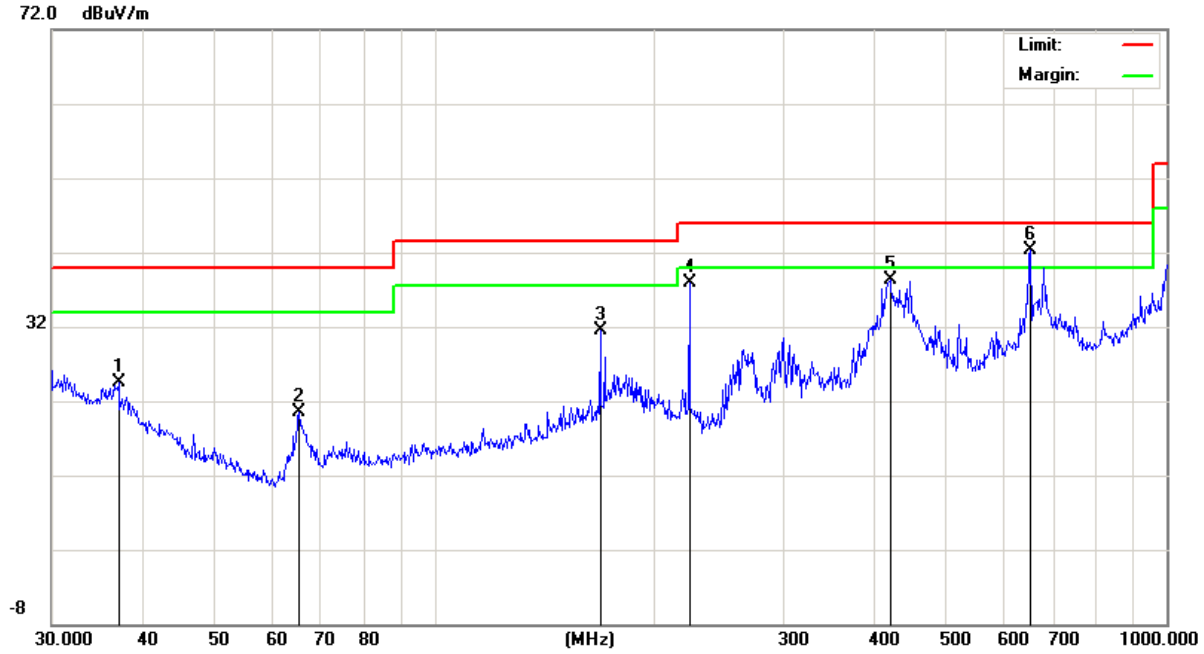
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	37.0248	8.11	16.33	24.44	40.00	-15.56	QP
H	65.3431	14.30	6.12	20.42	40.00	-19.58	QP
H	168.4138	19.24	12.30	31.54	43.50	-11.96	QP
H	222.9500	26.99	10.89	37.88	46.00	-8.12	QP
H	419.1080	23.70	14.67	38.37	46.00	-7.63	QP
H	651.9415	21.88	20.39	42.27	46.00	-3.73	QP

Remark:

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



3.2.8 TEST RESULTS (1GHz-18GHz)

EUT：	Wireless LAN equipment	Model Name. ：	SBT200DI
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V
Test Mode ：	TX(5.2G) - 802.11a _5180~5240MHz		

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5180 MHz)-Above 1G									
Vertical	2462.126	55.16	5.94	35.40	44.00	52.5	74.00	-21.5	Pk
Vertical	2462.126	47.28	5.94	35.40	44.00	44.62	54.00	-9.38	AV
Vertical	10331.257	60.31	8.46	39.75	44.50	64.02	74.00	-9.98	Pk
Vertical	10331.257	46.28	8.46	39.75	44.50	49.99	54.00	-4.01	AV
Vertical	15527.221	58.38	10.12	38.80	44.10	63.2	74.00	-10.8	Pk
Vertical	15527.221	43.82	10.12	38.80	42.70	50.04	54.00	-3.96	AV
Horizontal	2434.261	59.32	5.94	35.18	44.00	56.44	74.00	-17.56	Pk
Horizontal	2434.261	43.28	5.94	35.18	44.00	40.4	54.00	-13.6	AV
Horizontal	10362.418	60.25	8.46	38.71	44.50	62.92	74.00	-11.08	Pk
Horizontal	10362.418	44.73	8.46	38.71	44.50	47.4	54.00	-6.6	AV
Horizontal	15542.257	58.26	10.12	38.38	44.10	62.66	74.00	-11.34	Pk
Horizontal	15542.257	44.17	10.12	38.38	44.10	48.57	54.00	-5.43	AV
middle Channel (5200 MHz)-Above 1G									
Vertical	2315.655	58.25	6.48	36.35	44.05	57.03	74.00	-16.97	Pk
Vertical	2315.124	43.05	6.48	36.35	44.05	41.83	54.00	-12.17	AV
Vertical	10400.229	62.15	8.47	37.88	44.51	63.99	74.00	-10.01	Pk
Vertical	10400.215	45.21	8.47	37.88	44.51	47.05	54.00	-6.95	AV
Vertical	15560.151	57.25	10.12	38.8	44.10	62.07	74.00	-11.93	Pk
Vertical	15560.322	42.12	10.12	38.8	42.70	48.34	54.00	-5.66	AV
Horizontal	2441.128	58.36	6.48	36.37	44.05	57.16	74.00	-16.84	Pk
Horizontal	2441.11	43.12	6.48	36.37	44.05	41.92	54.00	-12.08	AV
Horizontal	10401.283	60.27	8.47	38.64	44.50	62.88	74.00	-11.12	Pk
Horizontal	10401.263	46.25	8.47	38.64	44.50	48.86	54.00	-5.14	AV
Horizontal	15561.258	57.38	10.12	38.38	44.10	61.78	74.00	-12.22	Pk
Horizontal	15561.035	43.15	10.12	38.38	44.10	47.55	54.00	-6.45	AV
High Channel (5240 MHz)-Above 1G									
Vertical	2418.262	56.22	7.10	37.24	43.50	57.06	74.00	-16.94	Pk
Vertical	2418.232	42.85	7.10	37.24	43.50	43.69	54.00	-10.31	AV
Vertical	10480.109	61.24	8.46	37.68	44.50	62.88	74.00	-11.12	Pk
Vertical	10480.117	45.27	8.46	37.68	44.50	46.91	54.00	-7.09	AV
Vertical	15720.061	57.18	10.12	38.8	44.10	62	74.00	-12	Pk
Vertical	15720.145	41.25	10.12	38.8	42.70	47.47	54.00	-6.53	AV
Horizontal	2413.165	59.25	7.10	37.24	43.50	60.09	74.00	-13.91	Pk
Horizontal	2413.266	42.13	7.10	37.24	43.50	42.97	54.00	-11.03	AV
Horizontal	10480.812	57.62	8.46	38.57	44.50	60.15	74.00	-13.85	Pk
Horizontal	10480.157	45.12	8.46	38.57	44.50	47.65	54.00	-6.35	AV
Horizontal	15720.134	58.16	10.12	38.38	44.10	62.56	74.00	-11.44	Pk
Horizontal	15720.115	42.33	10.12	38.38	44.10	46.73	54.00	-7.27	AV

Note:"802.11a(5G)" mode is the worst mode. PK value is lower than the Average value limit, So average didn't record.

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value

has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

EUT :	Wireless LAN equipment	Model Name. :	SBT200DI
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5V
Test Mode :	TX (5.8G) -- 802.11a _5745~5825MHz		

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5745 MHz)-Above 1G									
Vertical	4679.234	53.21	5.94	35.40	44.00	50.55	74.00	-23.45	Pk
Vertical	4679.234	42.71	5.94	35.40	44.00	40.05	54.00	-13.95	AV
Vertical	11490.227	61.02	8.46	39.75	44.50	64.73	74.00	-9.27	Pk
Vertical	11490.227	43.72	8.46	39.75	44.50	47.43	54.00	-6.57	AV
Vertical	17235.265	57.41	10.12	38.80	44.10	62.23	74.00	-11.77	Pk
Vertical	17235.154	41.51	10.12	38.80	42.70	47.73	54.00	-6.27	AV
Horizontal	4679.639	58.34	5.94	35.18	44.00	55.46	74.00	-18.54	Pk
Horizontal	4679.639	45.27	5.94	35.18	44.00	42.39	54.00	-11.61	AV
Horizontal	11490.128	58.54	8.46	38.71	44.50	61.21	74.00	-12.79	Pk
Horizontal	10360.605	42.71	8.46	38.71	44.50	45.38	54.00	-8.62	AV
Horizontal	17235.111	57.32	10.12	38.38	44.10	61.72	74.00	-12.28	Pk
Horizontal	17235.109	43.12	10.12	38.38	44.10	47.52	54.00	-6.48	AV
middle Channel (5785 MHz)-Above 1G									
Vertical	4592.256	58.47	6.48	36.35	44.05	57.25	74.00	-16.75	Pk
Vertical	4592.256	44.12	6.48	36.35	44.05	42.9	54.00	-11.1	AV
Vertical	11570.199	61.25	8.47	37.88	44.51	63.09	74.00	-10.91	Pk
Vertical	11570.199	42.58	8.47	37.88	44.51	44.42	54.00	-9.58	AV
Vertical	17355.128	58.41	10.12	38.8	44.10	63.23	74.00	-10.77	Pk
Vertical	17355.128	41.25	10.12	38.8	42.70	47.47	54.00	-6.53	AV
Horizontal	4592.535	57.62	6.48	36.37	44.05	56.42	74.00	-17.58	Pk
Horizontal	4592.535	42.13	6.48	36.37	44.05	40.93	54.00	-13.07	AV
Horizontal	11570.271	62.51	8.47	38.64	44.50	65.12	74.00	-8.88	Pk
Horizontal	11570.271	43.82	8.47	38.64	44.50	46.43	54.00	-7.57	AV
Horizontal	17355.247	56.45	10.12	38.38	44.10	60.85	74.00	-13.15	Pk
Horizontal	17356.721	43.27	10.12	38.38	44.10	47.67	54.00	-6.33	AV
High Channel (5825 MHz)-Above 1G									
Vertical	6039.235	56.24	7.10	37.24	43.50	57.08	74.00	-16.92	Pk
Vertical	6039.235	41.25	7.10	37.24	43.50	42.09	54.00	-11.91	AV
Vertical	11652.838	57.82	8.46	37.68	44.50	59.46	74.00	-14.54	Pk
Vertical	11652.838	43.17	8.46	37.68	44.50	44.81	54.00	-9.19	AV
Vertical	17473.128	57.74	10.12	38.8	44.10	62.56	74.00	-11.44	Pk
Vertical	17473.107	41.02	10.12	38.8	42.70	47.24	54.00	-6.76	AV
Horizontal	6039.101	58.22	7.10	37.24	43.50	59.06	74.00	-14.94	Pk
Horizontal	6039.101	42.35	7.10	37.24	43.50	43.19	54.00	-10.81	AV
Horizontal	11652.283	55.18	8.46	38.57	44.50	57.71	74.00	-16.29	Pk
Horizontal	11652.283	41.05	8.46	38.57	44.50	43.58	54.00	-10.42	AV
Horizontal	17474.247	57.31	10.12	38.38	44.10	61.71	74.00	-12.29	Pk
Horizontal	17474.721	42.12	10.12	38.38	44.10	46.52	54.00	-7.48	AV

Note:"802.11a(5G)" mode is the worst mode. PK value is lower than the Average value limit, So average didn't record.

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value

has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

TEST RESULTS (18GHz-40GHz)

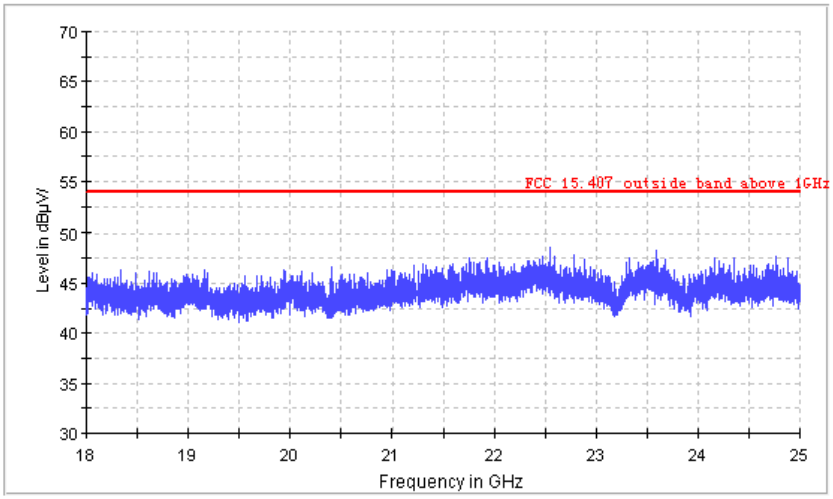
EUT :	Wireless LAN equipment	Model Name. :	SBT200DI
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5V
Test Mode :	TX (5.2G)-802.11a 5180MHz~5240MHz , TX (5.8G)-802.11a 5745MHz~5825MHz		

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

Low Channel (5180 MHz)-Above 1G

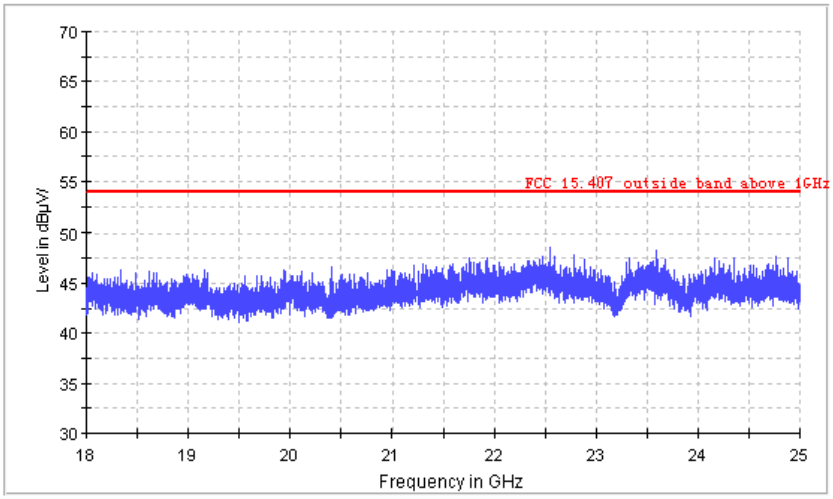
Horizontal

FCC Electric Field Strength 18-26.5GHz



Vertical

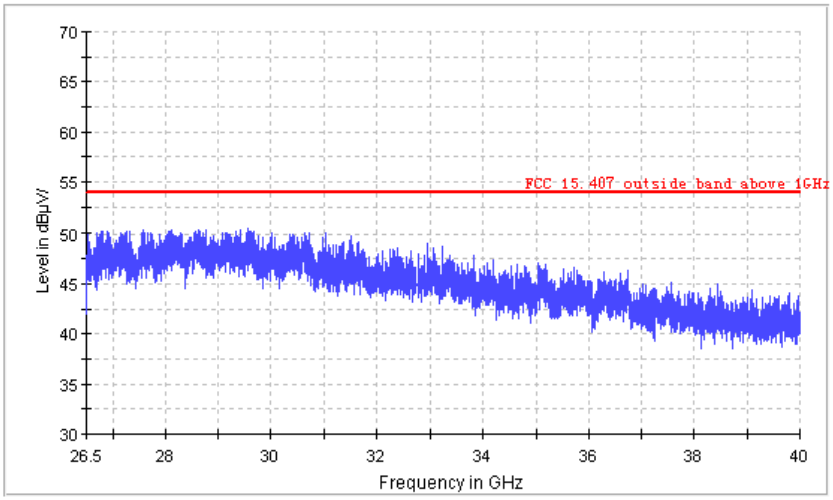
FCC Electric Field Strength 18-26.5GHz



Low Channel (5180 MHz)-Above 1G

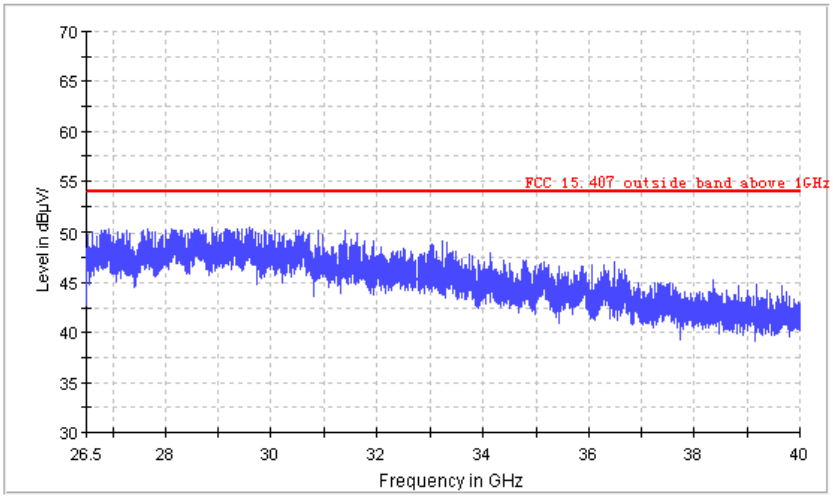
Horizontal

FCC Electric Field Strength 26.5-40GHz



Vertical

FCC Electric Field Strength 26.5-40GHz



4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(a)(3)

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz

(3)For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

,

4.2 TEST PROCEDURE

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/T, where T is defined in section II.B.l.a).

b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10log(1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

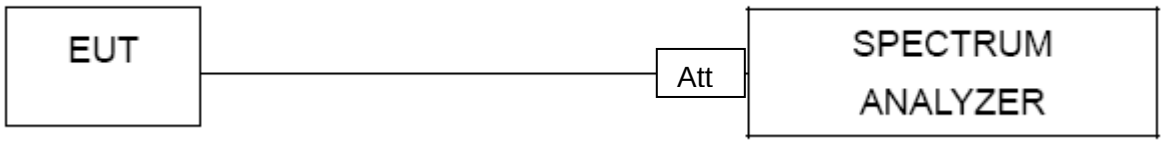
e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since RBW=100 KHZ is available on nearly all spectrum analyzers.

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP



4.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

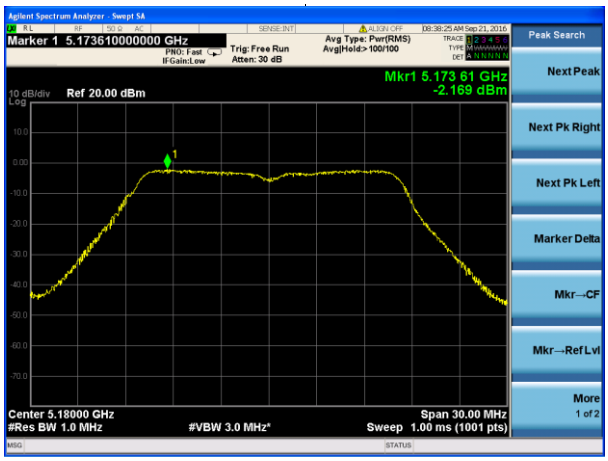
4.6 TEST RESULTS

EUT :	Wireless LAN equipment	Model Name. :	SBT200DI
Temperature :	25 ℃	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 5V
Test Mode :	TX Frequency Band I (5150-5250MHz)		

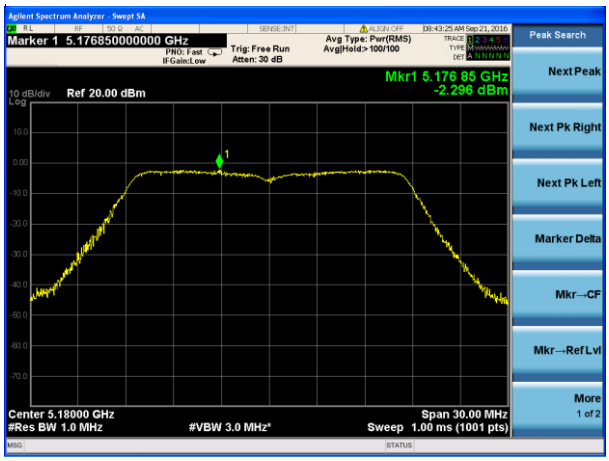
Mode	Frequency	Measured Power Density (dBm)	Limit (dBm)	Result
802.11 a	5180 MHz	-2.169	11	PASS
	5200 MHz	-2.040	11	PASS
	5240 MHz	-1.896	11	PASS
802.11 n20	5180 MHz	-2.296	11	PASS
	5200 MHz	-2.159	11	PASS
	5240 MHz	-2.370	11	PASS
802.11 n40	5190 MHz	-5.470	11	PASS
	5230 MHz	-5.904	11	PASS
802.11 AC20	5180 MHz	-2.139	11	PASS
	5200 MHz	-2.291	11	PASS
	5240 MHz	-2.022	11	PASS
802.11 AC40	5190 MHz	-4.613	11	PASS
	5230 MHz	-5.981	11	PASS
802.11 AC80	5210 MHz	-5.243	11	PASS

Note: 4.71 dBi<6dBi so power density limit=11dBm

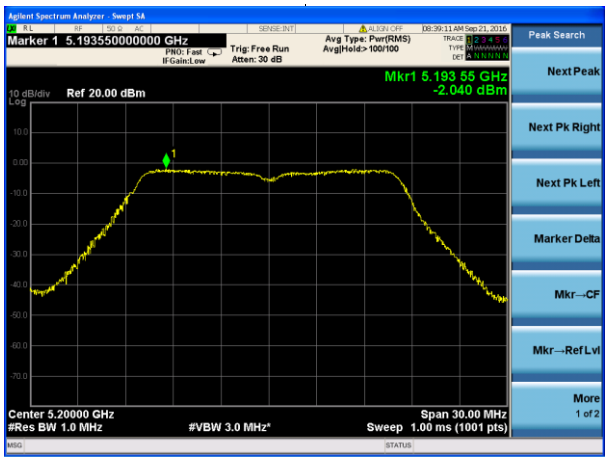
(802.11a) PSD plot on channel 36



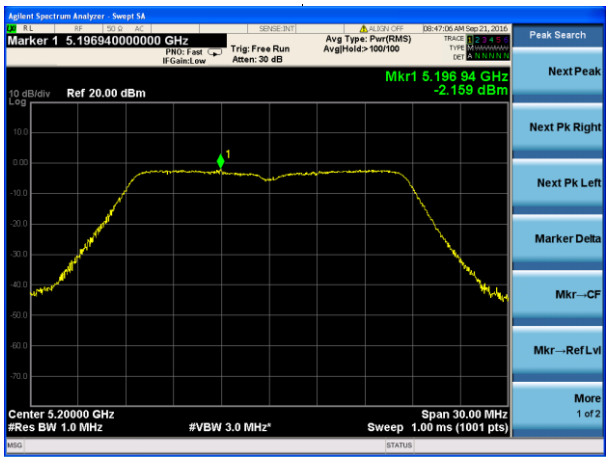
(802.11n20) PSD plot on channel 36



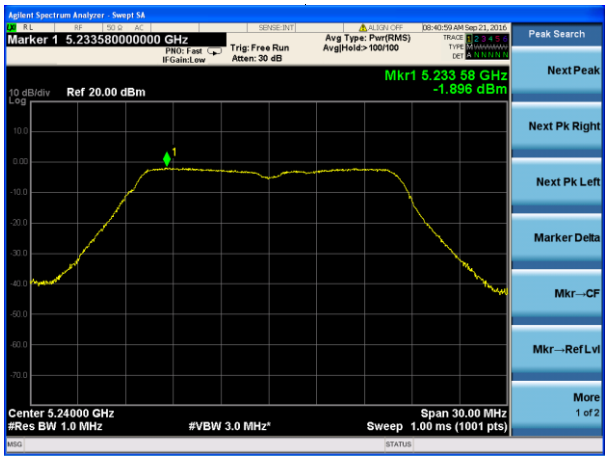
(802.11a) PSD plot on channel 40



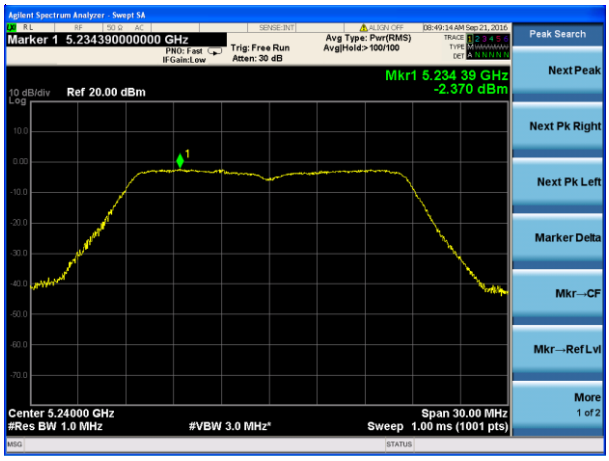
(802.11n20) PSD plot on channel 40



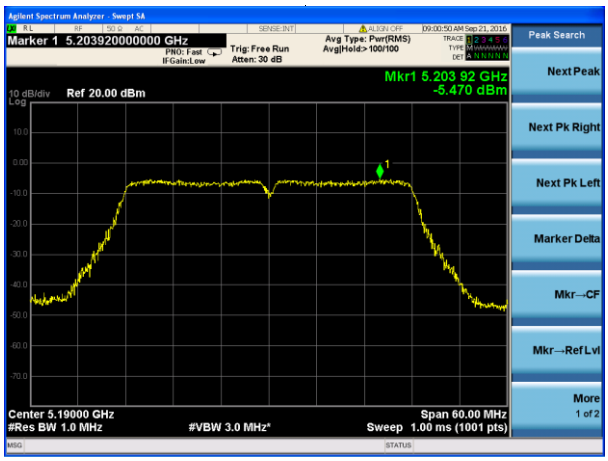
(802.11a) PSD plot on channel 48



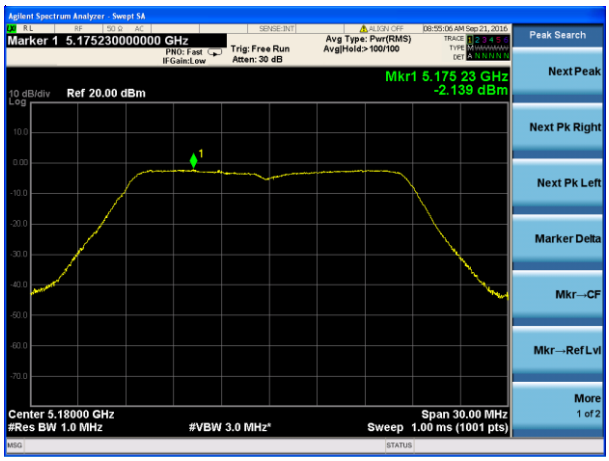
(802.11n20) PSD plot on channel 48



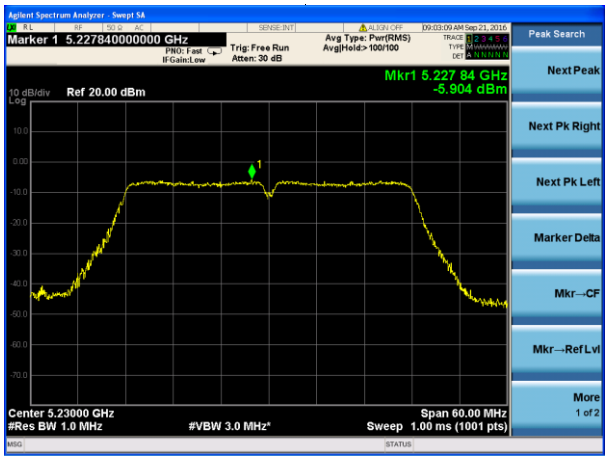
(802.11n40) PSD plot on channel 38



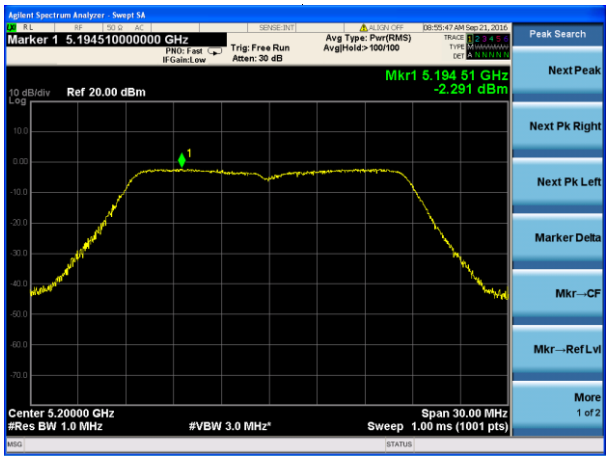
(802.11ac20) PSD plot on channel 36



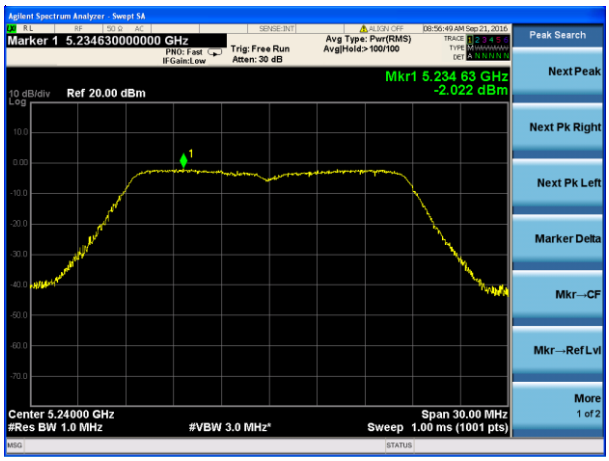
(802.11n40) PSD plot on channel 46



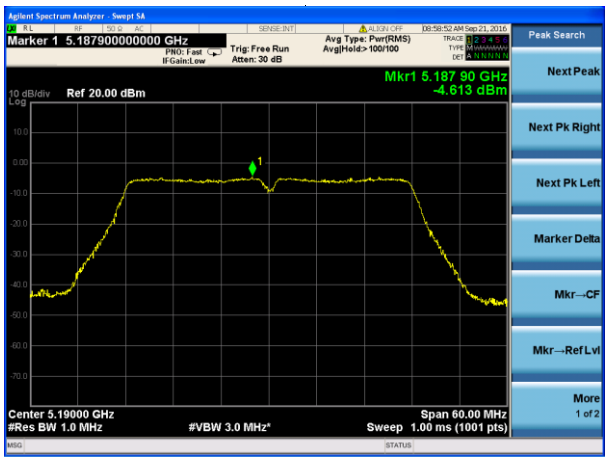
(802.11ac20) PSD plot on channel 40



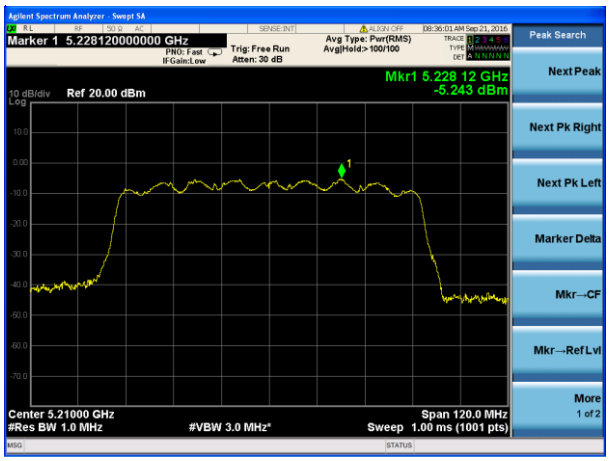
(802.11ac20) PSD plot on channel 48



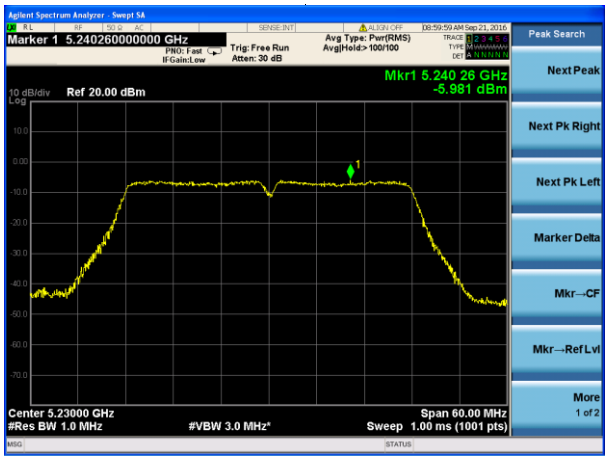
(802.11ac40) PSD plot on channel 38



(802.11ac80) PSD plot on channel 42



(802.11ac40) PSD plot on channel 46

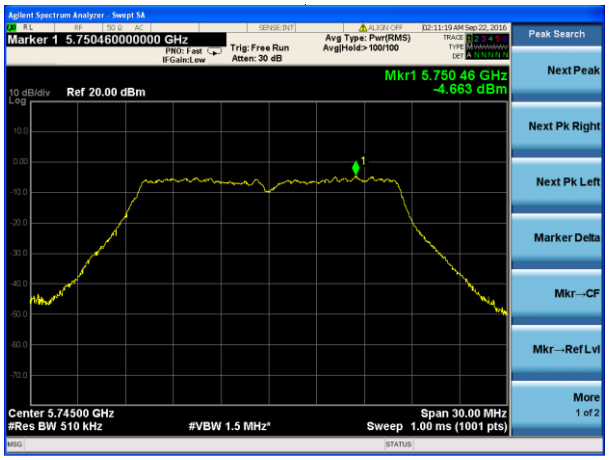


EUT：	Wireless LAN equipment	Model Name. ：	SBT200DI
Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1015 hPa	Test Voltage ：	DC 5V
Test Mode ：	TX Frequency Band IV (5745-5825MHz)		

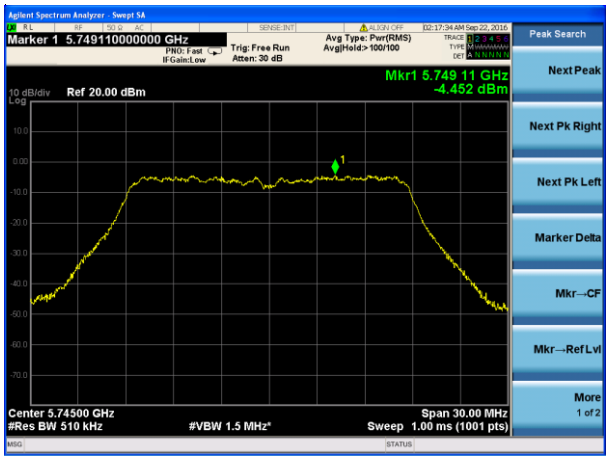
Mode	Frequency	Measured Power Density (dBm)	Limit (dBm)	Result
802.11 a	5745 MHz	-4.663	30	PASS
	5785 MHz	-3.954	30	PASS
	5825 MHz	-3.930	30	PASS
802.11 n20	5745 MHz	-4.452	30	PASS
	5785 MHz	-4.875	30	PASS
	5825 MHz	-4.016	30	PASS
802.11 n40	5755 MHz	-5.615	30	PASS
	5795 MHz	-5.409	30	PASS
802.11 AC20	5745 MHz	-3.859	30	PASS
	5785 MHz	-3.006	30	PASS
	5825 MHz	-3.807	30	PASS
802.11 AC40	5755 MHz	-5.794	30	PASS
	5795 MHz	-4.603	30	PASS
802.11 AC80	5775 MHz	-6.156	30	PASS

Note: 4.71 dbi<6.0 dbi so power density limit= 30

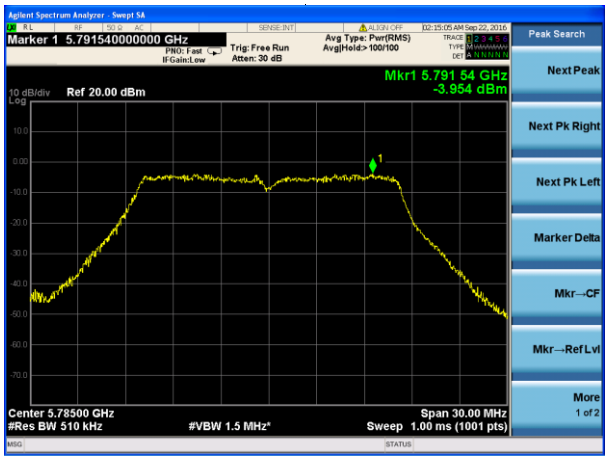
(802.11a) PSD plot on channel 149



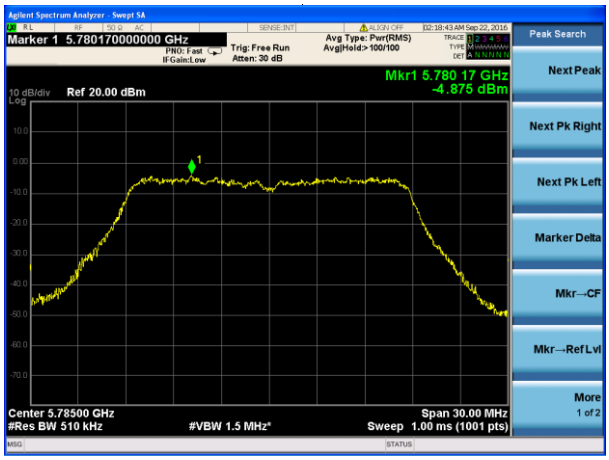
(802.11n20) PSD plot on channel 149



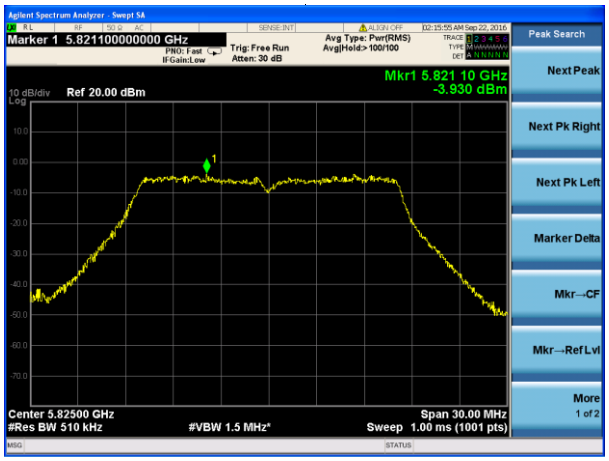
(802.11a) PSD plot on channel 157



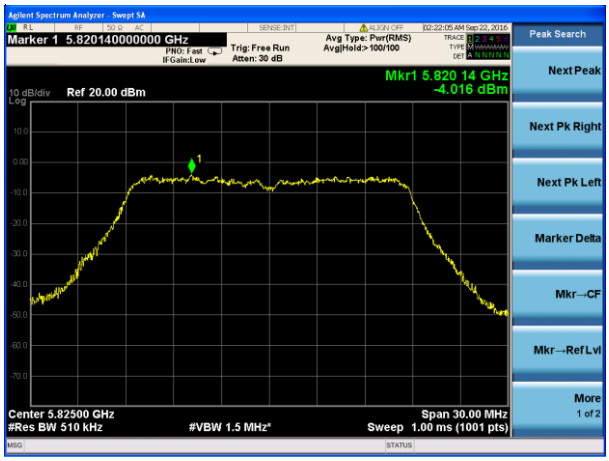
(802.11n20) PSD plot on channel 157



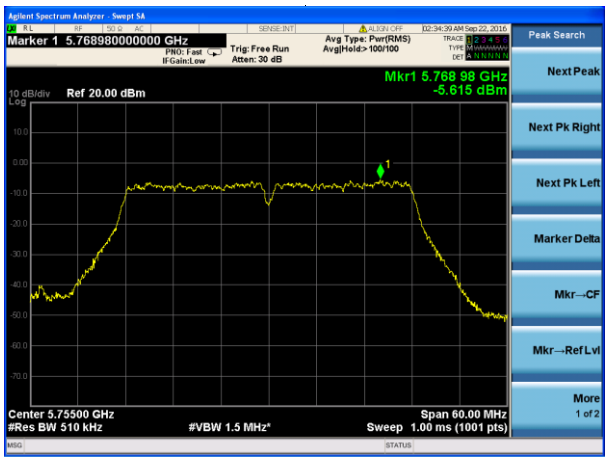
(802.11a) PSD plot on channel 165



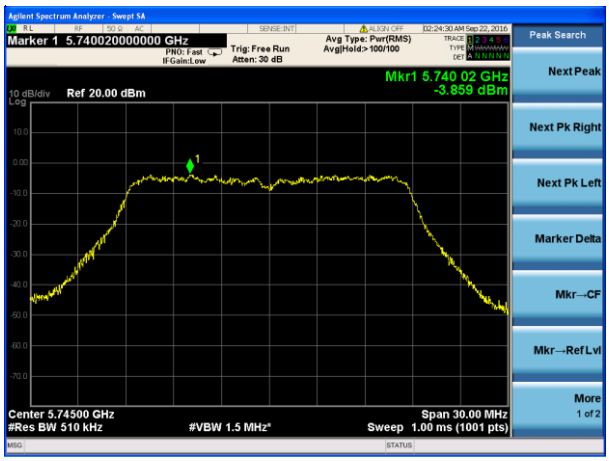
(802.11n20) PSD plot on channel 165



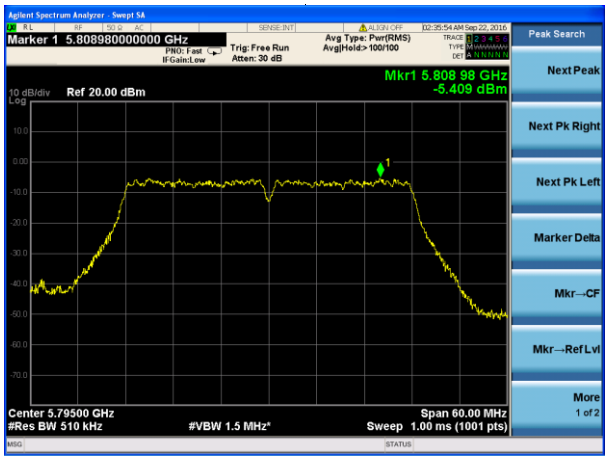
(802.11n40) PSD plot on channel 151



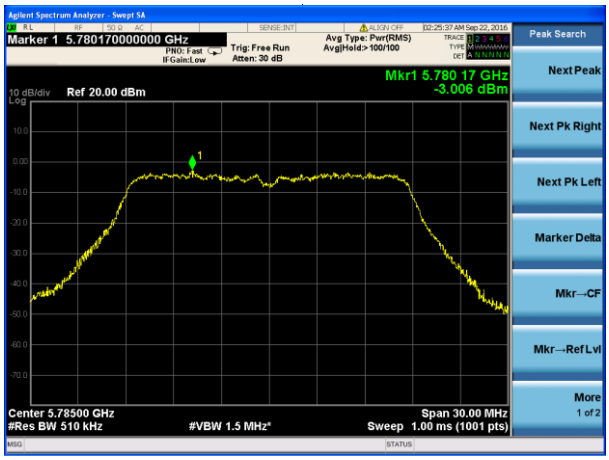
(802.11ac20) PSD plot on channel 149



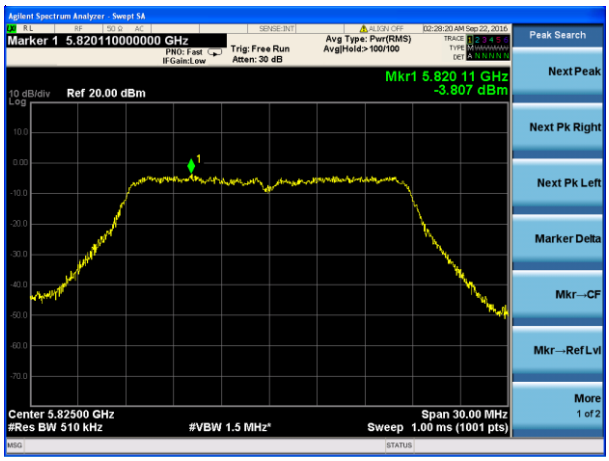
(802.11n40) PSD plot on channel 159



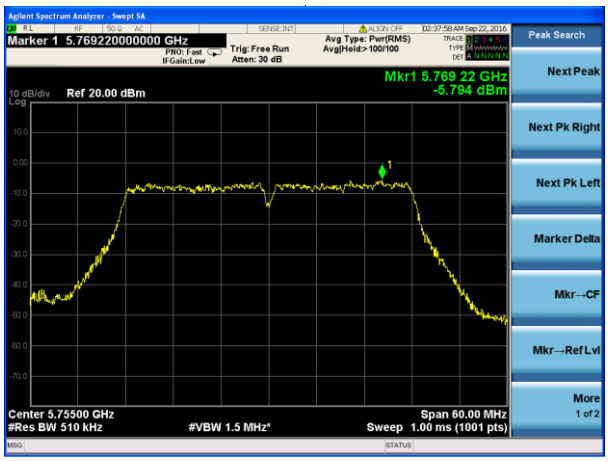
(802.11ac20) PSD plot on channel 157



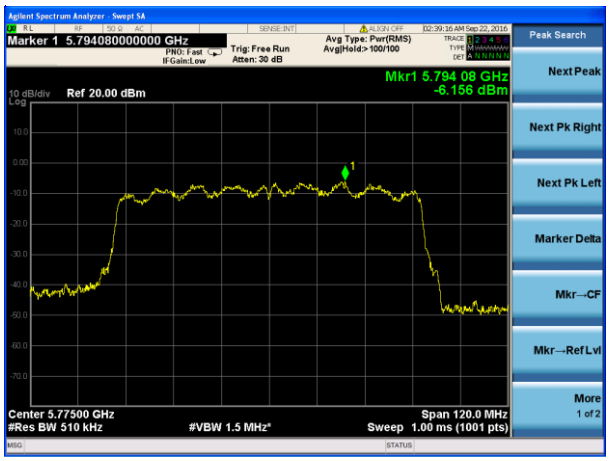
(802.11ac20) PSD plot on channel 165



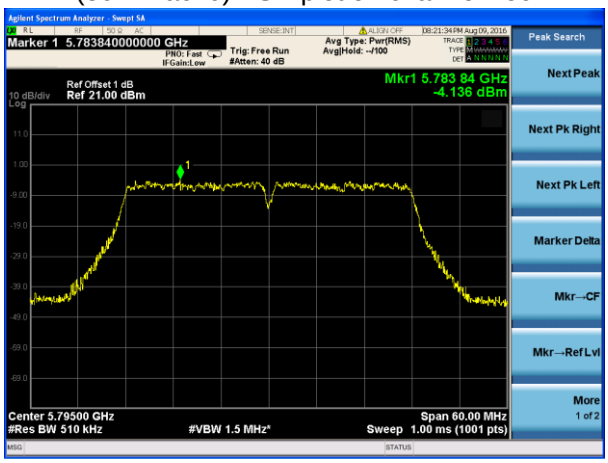
(802.11ac40) PSD plot on channel 151



(802.11ac80) PSD plot on channel 155



(802.11ac40) PSD plot on channel 159



5. 26DB & 99% EMISSION BANDWIDTH

5.1 APPLIED PROCEDURES / LIMIT

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

5.2 TEST PROCEDURE

a) Set RBW = approximately 1% of the emission bandwidth.

b) Set the VBW > RBW.

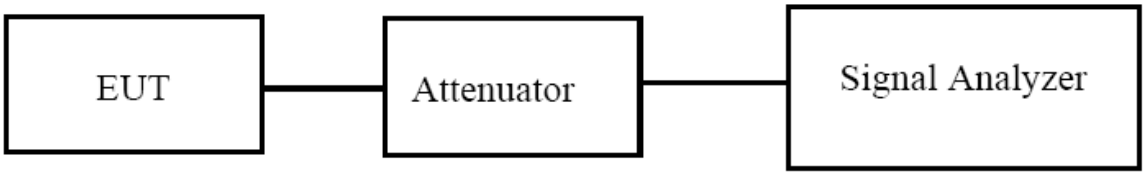
c) Detector = Peak.

d) Trace mode = max hold.

e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW ≥ 3 · RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.



5.3 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.4 TEST RESULTS

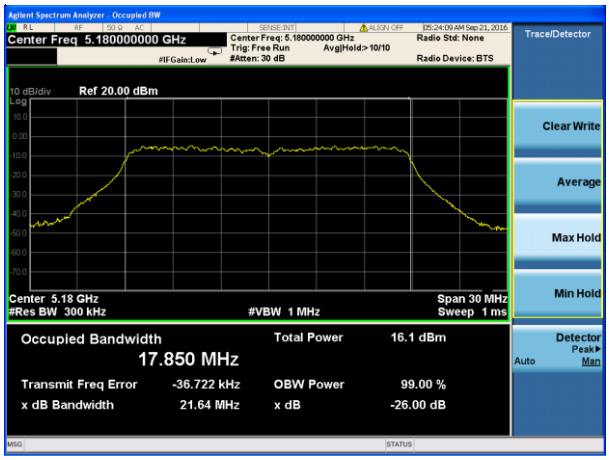
EUT：	Wireless LAN equipment	Model Name. ：	SBT200DI
Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1012 hPa	Test Voltage ：	DC 5V
Test Mode ：	TX Frequency Band I (5150-5250MHz)		

Mode	Channel	Frequency (MHz)	99% bandwidth(MHz)	26dB bandwidth (MHz)	Result
802.11a	CH36	5180	16.787	21.10	Pass
	CH40	5200	16.785	21.10	Pass
	CH48	5240	16.794	21.12	Pass
802.11 n20	CH36	5180	17.850	21.64	Pass
	CH40	5200	17.860	21.70	Pass
	CH48	5240	17.879	21.86	Pass
802.11 n40	CH 38	5190	36.292	42.64	Pass
	CH 46	5230	36.239	42.72	Pass
802.11 AC20	CH36	5180	17.882	21.60	Pass
	CH40	5200	17.870	21.67	Pass
	CH48	5240	17.868	21.69	Pass
802.11 AC40	CH 38	5190	36.263	42.64	Pass
	CH 46	5230	36.259	42.70	Pass
802.11 AC80	CH 42	5210	74.907	79.86	Pass

Test plot

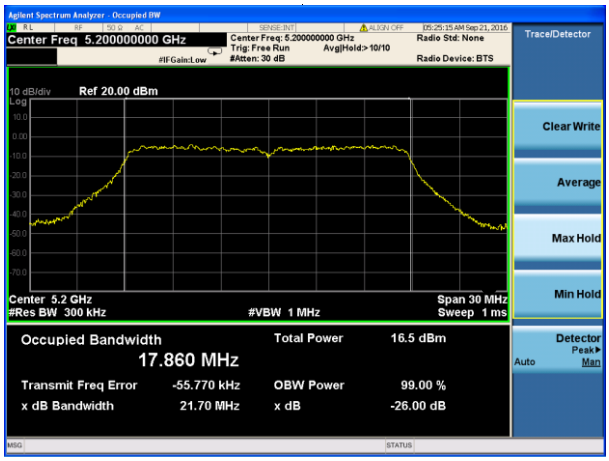
(802.11a) Bandwidth plot on channel 36

(802.11 n20) Bandwidth plot on channel 36

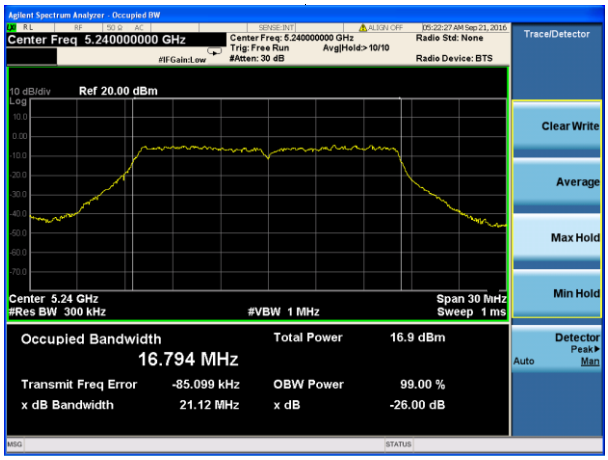


(802.11a) Bandwidth plot on channel 40

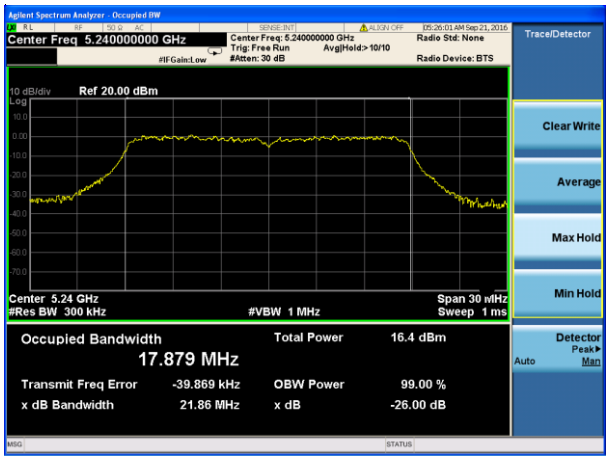
(802.11 n20) Bandwidth plot on channel 40



(802.11a) Bandwidth plot on channel 48



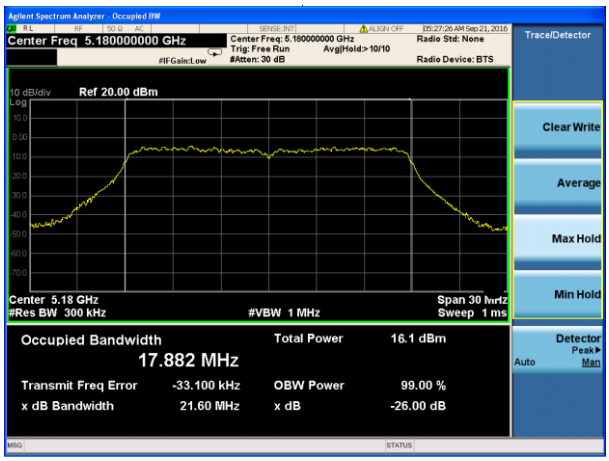
(802.11 n20) Bandwidth plot on channel 48



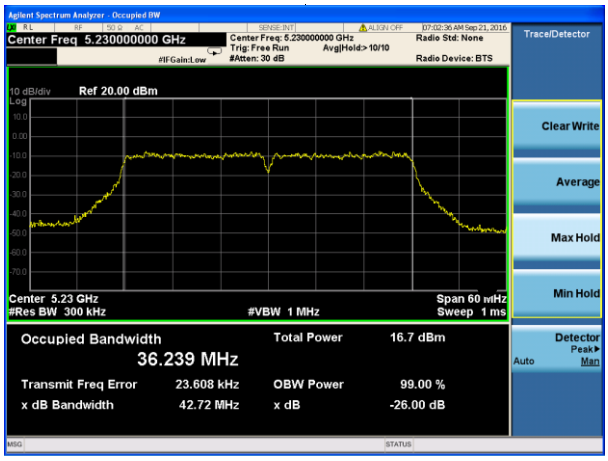
Test plot

(802.11 n40) Bandwidth plot on channel 38

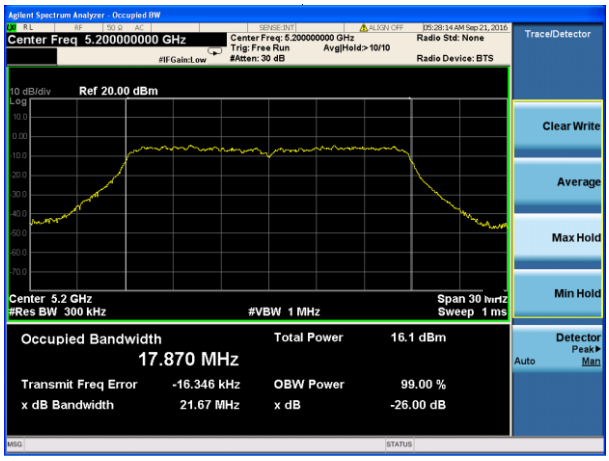
(802.11 AC20) Bandwidth plot on channel 36



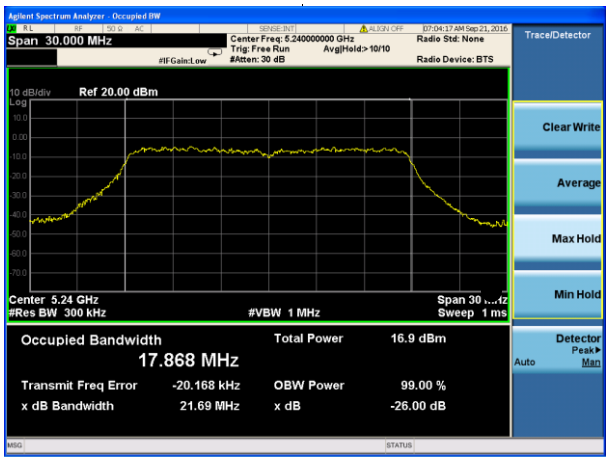
(802.11 n40) Bandwidth plot on channel 46



(802.11 AC20) Bandwidth plot on channel 40

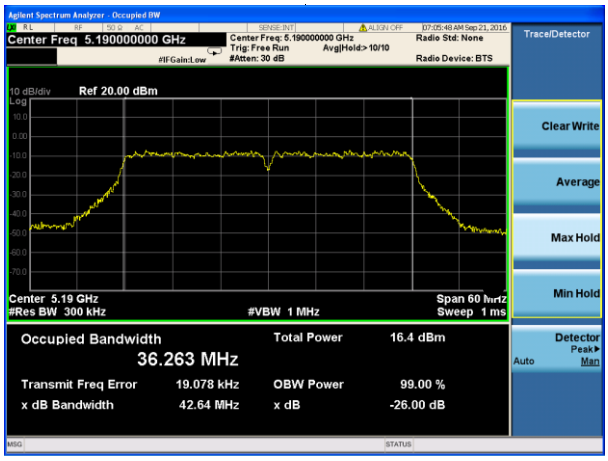


(802.11 AC20) Bandwidth plot on channel 48

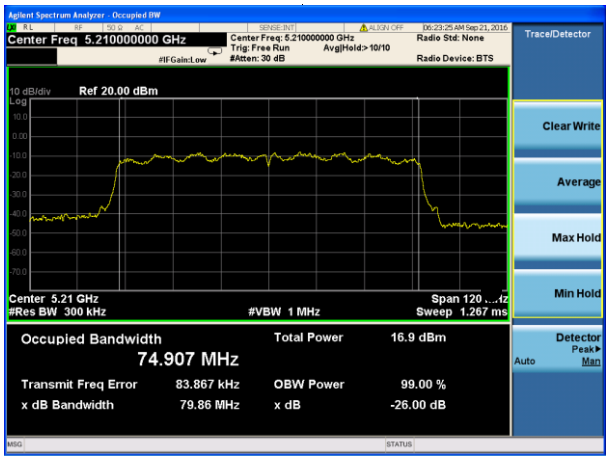


Test plot

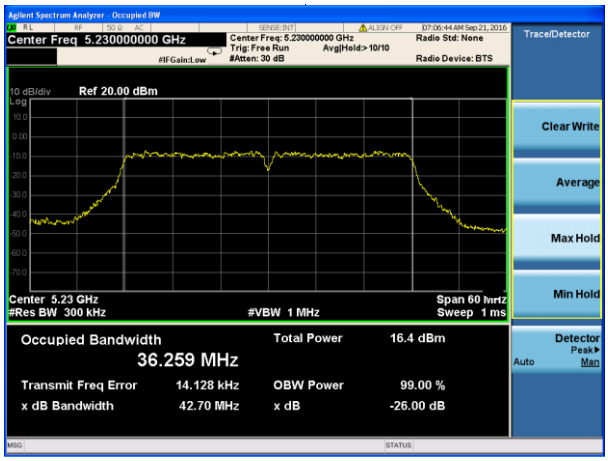
(802.11 AC40) Bandwidth plot on channel 38



(802.11 AC80) Bandwidth plot on channel 42



(802.11 AC40) Bandwidth plot on channel 46

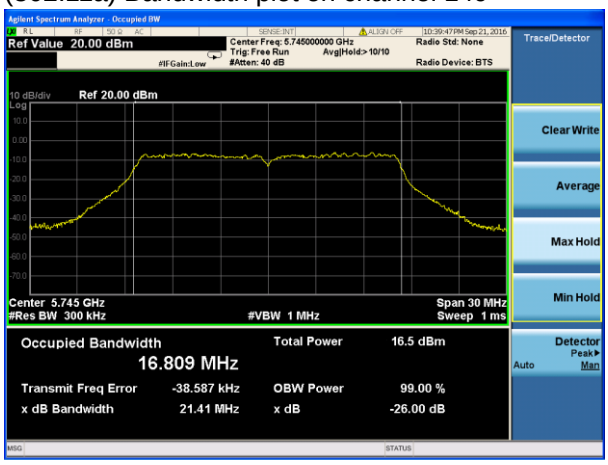


EUT：	Wireless LAN equipment	Model Name. ：	SBT200DI
Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1012 hPa	Test Voltage ：	DC 5V
Test Mode ：	TX Frequency Band IV(5745-5850MHz)		

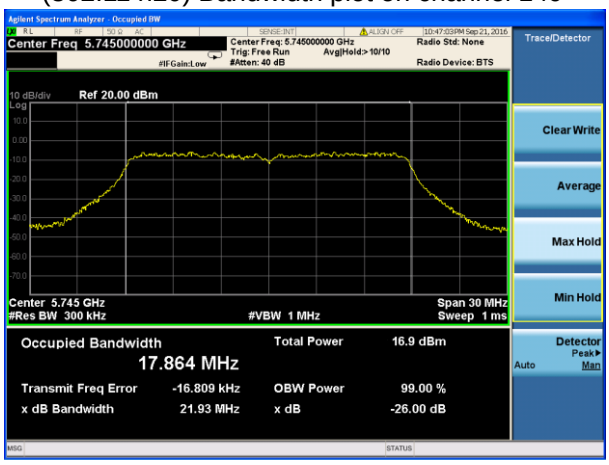
Mode	Channel	Frequency (MHz)	99% bandwidth(MHz)	26dB bandwidth (MHz)	Result
802.11a	CH149	5745	16.809	21.41	Pass
	CH157	5785	16.791	21.41	Pass
	CH165	5825	16.810	21.20	Pass
802.11 n20	CH149	5745	17.864	21.93	Pass
	CH157	5785	17.866	21.74	Pass
	CH165	5825	17.890	22.06	Pass
802.11 n40	CH151	5755	37.206	45.02	Pass
	CH159	5795	37.185	45.45	Pass
802.11 AC20	CH149	5745	17.896	21.90	Pass
	CH157	5785	17.878	21.77	Pass
	CH165	5825	17.907	21.85	Pass
802.11 AC40	CH151	5755	37.203	45.26	Pass
	CH159	5795	37.258	43.35	Pass
802.11 AC80	CH155	5775	74.977	82.57	Pass

Test plot

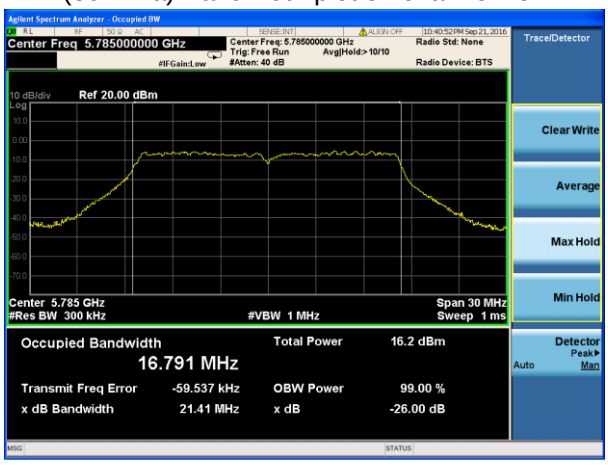
(802.11a) Bandwidth plot on channel 149



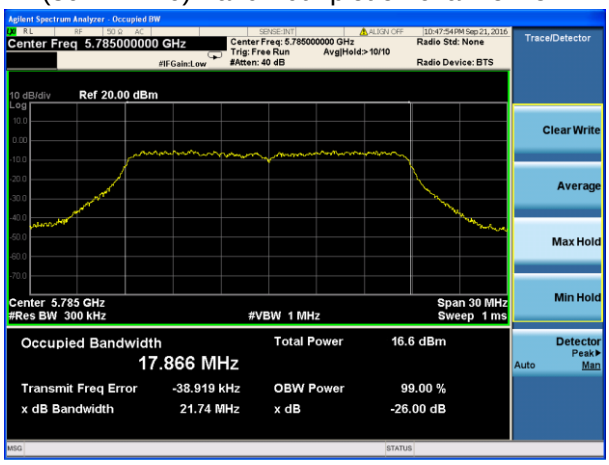
(802.11 n20) Bandwidth plot on channel 149



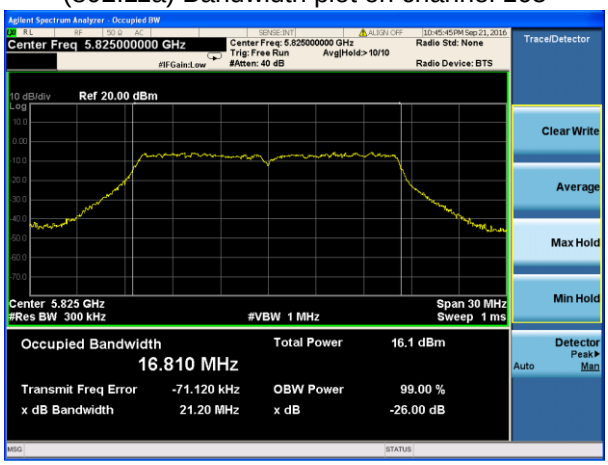
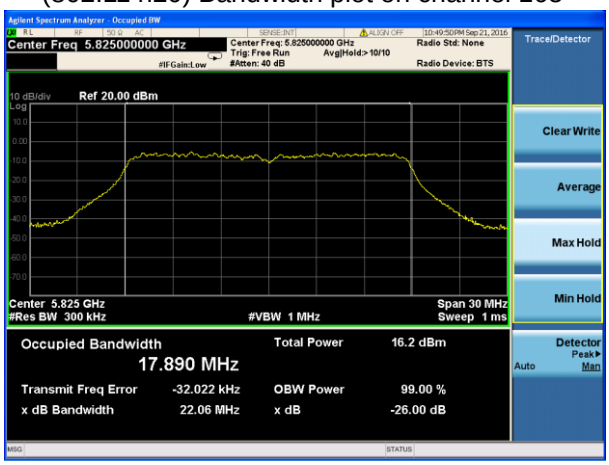
(802.11a) Bandwidth plot on channel 157



(802.11 n20) Bandwidth plot on channel 157



(802.11a) Bandwidth plot on channel 165



(802.11 n20) Bandwidth plot on channel 165