FCC RADIO TEST REPORT-BT
FCC ID:2AELAONEGLASS

Product: Smartphone
Trade Name: OWN
Model No.: One Glass
Serial Model: N/A
Report No.: NTEK-2016NT08198384F3
Issue Date: 26 Sep. 2016

Prepared for

Ingram Micro Chile S.A

El Rosal,4765,Huechuraba,Santiago,CL

Prepared by

NTEK TESTING TECHNOLOGY CO., LTD.
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1 TEST RESULT CERTIFICATION

Applicant's name ..... :	Ingram Micro Chile S.A
Address ..... :	El Rosal,4765,Huechuraba,Santiago,CL
Manufacture's Name ..... :	Haier International (HK) Limited
Address ..... :	503,Block B2, KeXing Science Park, KeYuan Road, Nanshan, Shenzhen, China
Product description	
Product name ..... :	Smartphone
Model and/or type reference ..... :	One Glass
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 : 19 Aug. 2016 ~ 26Sep. 2016

Testing Engineer : Eileen Liu.
(Eileen Liu)

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	Band Edge Emission	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 6, 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%

4 GENERAL DESCRIPTION OF EUT

Product Feature and Specification	
Equipment	Smartphone
Trade Name	OWN
FCC ID	2AELAONEGLASS
Model No.	One Glass
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); 9 channels for 802.11n(HT40);
Antenna Type	FPCB Antenna
Antenna Gain	1 dBi
Power supply	☒DC supply: DC 3.8V/2050mAh from Battery or DC 5V from Adapter.
	☒Adapter supply: Model:HJ-0501000E1-US Input:AC 100~240V 50/60Hz 0.2A Output:DC 5V,1000mAh
HW Version	W9 YK609-MB-V0.3
SW Version	YK609_MB_W9_HK_V017

Note: 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.

Revision History

Report No.	Version	Description	Issued Date
NTEK-2016NT08198384F3	Rev.01	Initial issue of report	Sep 26, 2016

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.

Those data rates (802.11b: 1 Mbps; 802.11g: 6 Mbps; 802.11n (HT20): MCS0; 802.11n (HT40): MCS0) were used for all test.
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

The following summary table is showing all test modes to demonstrate in compliance with the standard.

For AC Conducted Emission	
Final Test Mode	Description
Mode 1	normal link mode

Note: AC power line Conducted Emission was tested under maximum output power.

For Radiated Test Cases	
Final Test Mode	Description
Mode 1	normal link mode
Mode 2	802.11b CH1/ CH6/ CH11
Mode 3	802.11g CH1/ CH6/ CH11
Mode 4	802.11n HT20 CH1/ CH6/ CH11
Mode 5	802.11n HT40 CH3/ CH6/ CH9

Note: For radiated test cases, the worst mode data rate was reported only, because this data rate has the highest RF output power at preliminary tests, and no other significantly frequencies found in conducted spurious emission.

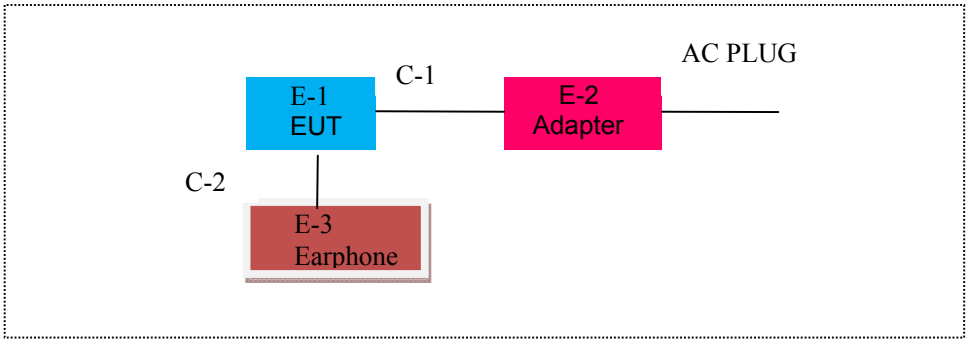
For Conducted Test Cases	
Final Test Mode	Description
Mode 2	802.11b CH1/ CH6/ CH11
Mode 3	802.11g CH1/ CH6/ CH11
Mode 4	802.11n HT20 CH1/ CH6/ CH11
Mode 5	802.11n HT40 CH3/ CH6/ CH9

Note: The engineering test program was provided and the EUT was programmed to be in continuously transmitting mode.

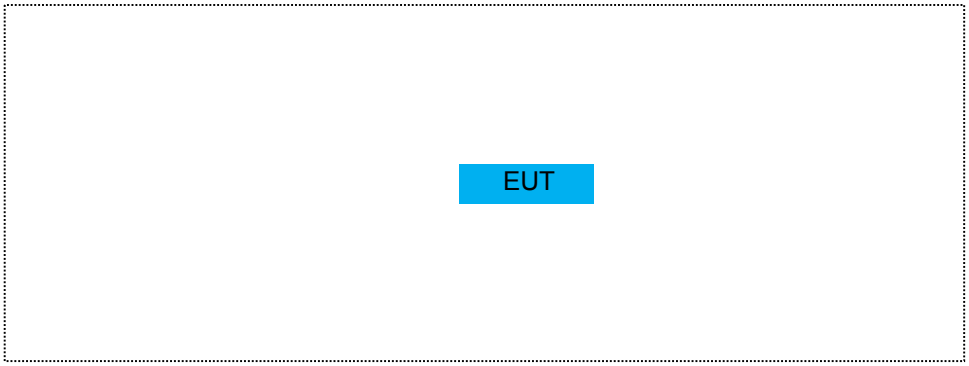
6 SETUP OF EQUIPMENT UNDER TEST

6.1 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM

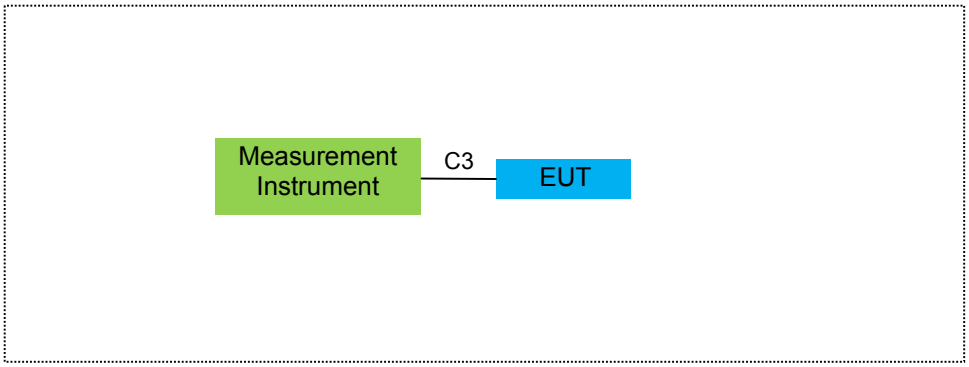
For AC Conducted Emission Mode



For Radiated Test Cases



For Conducted Test Cases



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.	Smartphone	OWN	One Glass	2AELAONEGLASS	EUT
E-2	Adapter	/	HJ-0501000E1-US	N/A	Peripherals
E-3	Earphone	N/A	L662	N/A	

Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	DC Cable	NO	YES	1.0m
C-2	Earphone Cable	NO	NO	0.8m
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	2016.08.23	2017.08.22	1 year
3	LISN	EMCO	3816/2	00042990	2016.08.23	2017.08.22	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2016.06.07	2017.06.06	1 year
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	2016.06.07	2017.06.06	1 year
6	Absorbing clamp	R&S	MOS-21	100423	2016.06.08	2017.06.07	1 year
7	Test Cable (9KHz-30MHz)	N/A	C01	N/A	2016.06.08	2017.06.07	1 year
8	Test Cable (9KHz-30MHz)	N/A	C02	N/A	2016.06.08	2017.06.07	1 year
9	Test Cable (9KHz-30MHz)	N/A	C03	N/A	2016.06.08	2017.06.07	1 year

1	Attenuation	MCE	24-10-34	BN9258	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

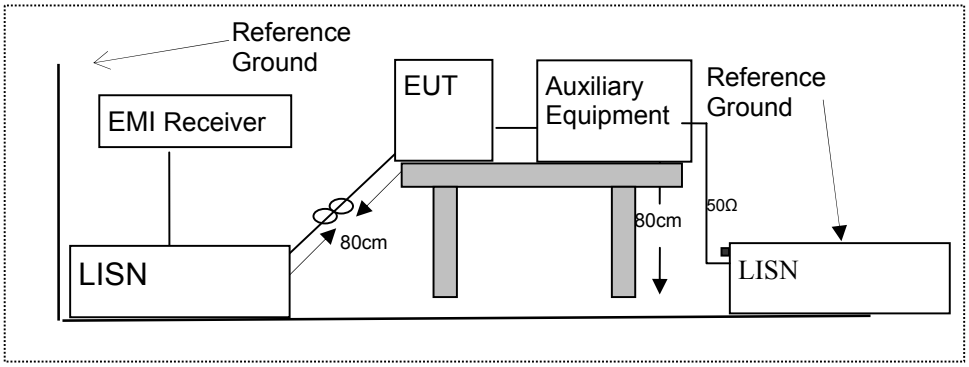
Frequency(MHz)	Conducted Emission Limit	
	Quasi-peak	Average
0.15-0.5	66-56*	56-46*
0.5-5.0	56	46
5.0-30.0	60	50

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.

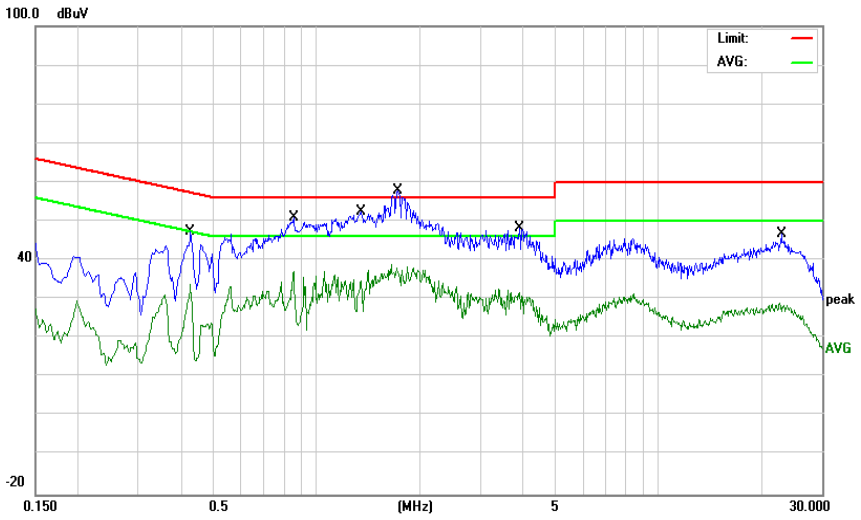
7.1.6 Test Results

EUT:	Smartphone	Model Name :	One Glass
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
0.4259	37.32	9.99	47.31	57.33	-10.02	AVG
0.4259	23.93	9.99	33.92	47.33	-13.41	QP
0.8539	41.11	9.84	50.95	56.00	-5.05	QP
0.8539	27.36	9.84	37.20	46.00	-8.80	AVG
1.3500	42.57	9.83	52.40	56.00	-3.60	QP
1.3500	27.59	9.83	37.42	46.00	-8.58	AVG
1.7180	44.21	9.79	54.00	56.00	-2.00	AVG
1.7180	29.05	9.79	38.84	46.00	-7.16	QP
3.9180	38.40	9.81	48.21	56.00	-7.79	QP
[illegible]	[illegible]	9.81	31.67	46.00	-14.33	AVG
22.8419	36.56	10.12	46.68	60.00	-13.32	QP
22.8419	18.81	10.12	28.93	50.00	-21.07	AVG

Remark:

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

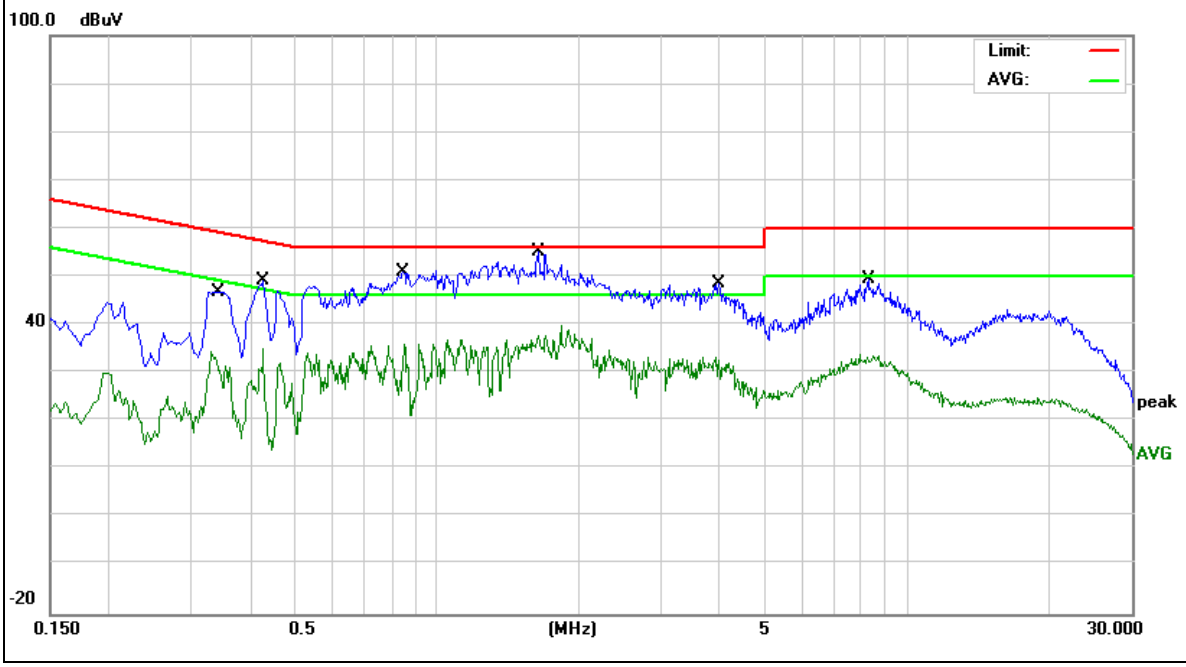


EUT：	Smartphone	Model Name ：	One Glass
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase :	N
Test Voltage ：	DC 5.0V form Adapter AC 120V/60Hz	Test Mode：	Mode 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.3420	36.75	10.10	46.85	59.15	-12.30	QP
0.3420	24.37	10.10	34.47	49.15	-14.68	AVG
0.4259	39.24	10.00	49.24	57.33	-8.09	QP
0.4259	24.98	10.00	34.98	47.33	-12.35	AVG
0.8459	41.04	9.85	50.89	56.00	-5.11	QP
0.8459	26.13	9.85	35.98	46.00	-10.02	AVG
1.6420	39.18	9.82	49.00	56.00	-7.00	QP
1.6420	30.00	9.82	39.82	46.00	-6.18	AVG
3.9700	38.70	9.78	48.48	56.00	-7.52	QP
3.9700	23.51	9.78	33.29	46.00	-12.71	AVG
8.2378	39.49	9.84	49.33	60.00	-10.67	QP
8.2378	23.91	9.84	33.75	50.00	-16.25	AVG

Remark:

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

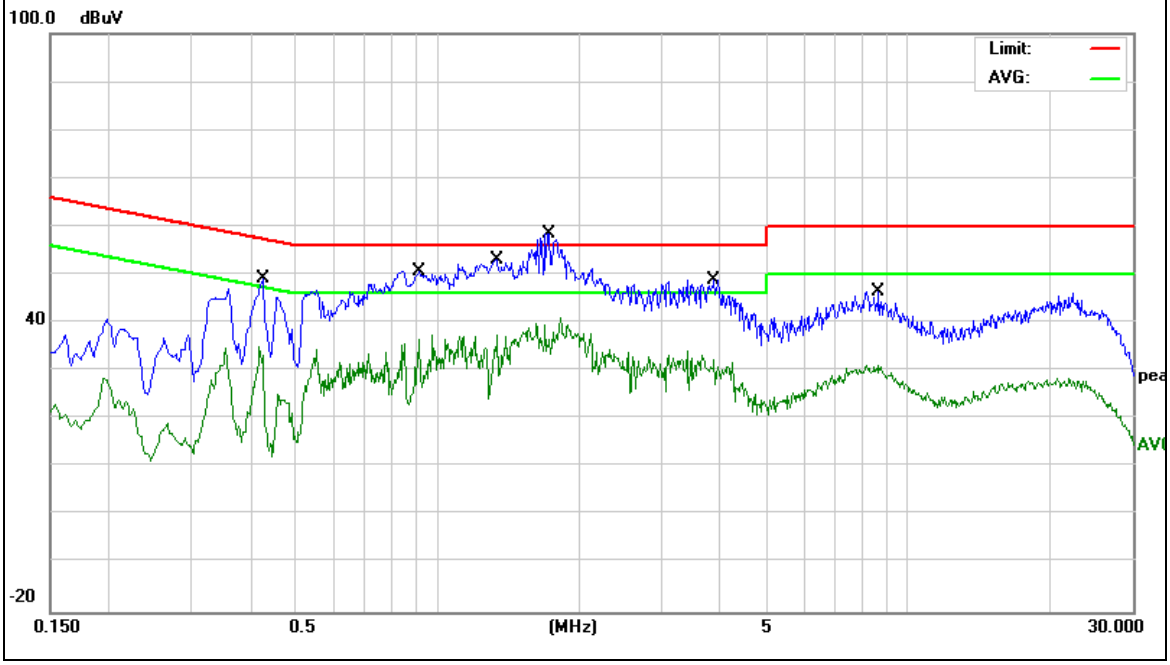


EUT：	Smartphone	Model Name ：	One Glass
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase :	L
Test Voltage ：	DC 5.0V form Adapter AC 240V/60Hz	Test Mode：	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.4259	39.09	9.99	49.08	57.33	-8.25	AVG
0.4259	25.01	9.99	35.00	47.33	-12.33	QP
0.9140	40.89	9.85	50.74	56.00	-5.26	QP
0.9140	26.67	9.85	36.52	46.00	-9.48	AVG
1.3340	43.20	9.83	53.03	56.00	-2.97	QP
1.3340	27.71	9.83	37.54	46.00	-8.46	AVG
1.7180	45.21	9.79	55.00	56.00	-1.00	AVG
1.7180	31.39	9.79	41.18	46.00	-4.82	QP
3.8780	38.98	9.81	48.79	56.00	-7.21	QP
3.8780	24.42	9.81	34.23	46.00	-11.77	AVG
8.6617	36.53	9.87	46.40	60.00	-13.60	QP
8.6617	21.26	9.87	31.13	50.00	-18.87	AVG

Remark:

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

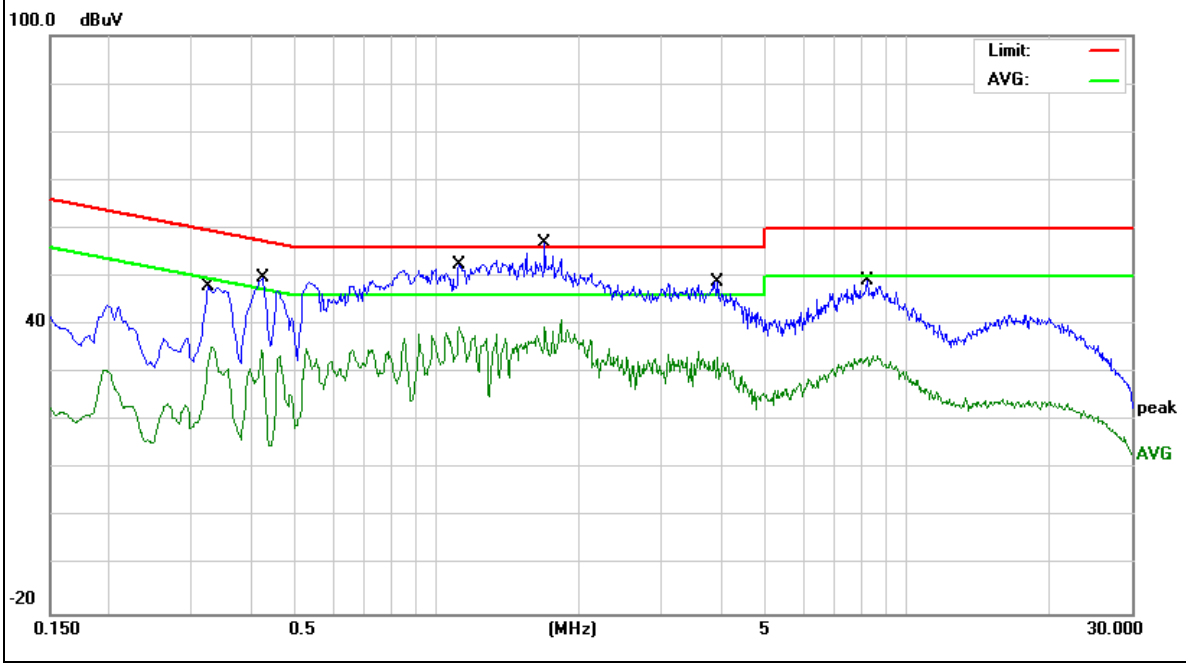


EUT：	Smartphone	Model Name ：	One Glass
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase :	N
Test Voltage ：	DC 5.0V form Adapter AC 240V/60Hz	Test Mode：	Mode 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.3260	37.84	10.11	47.95	59.55	-11.60	QP
0.3260	25.18	10.11	35.29	49.55	-14.26	AVG
0.4259	39.66	10.00	49.66	57.33	-7.67	QP
0.4259	24.88	10.00	34.88	47.33	-12.45	AVG
1.1140	42.46	9.88	52.34	56.00	-3.66	QP
1.1140	29.53	9.88	39.41	46.00	-6.59	AVG
1.6940	43.38	9.82	53.20	56.00	-2.80	QP
1.6940	31.17	9.82	40.99	46.00	-5.01	AVG
3.9540	39.17	9.78	48.95	56.00	-7.05	QP
3.9540	24.56	9.78	34.34	46.00	-11.66	AVG
8.2018	39.43	9.84	49.27	60.00	-10.73	QP
8.2018	23.61	9.84	33.45	50.00	-16.55	AVG

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 DA 00-705

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

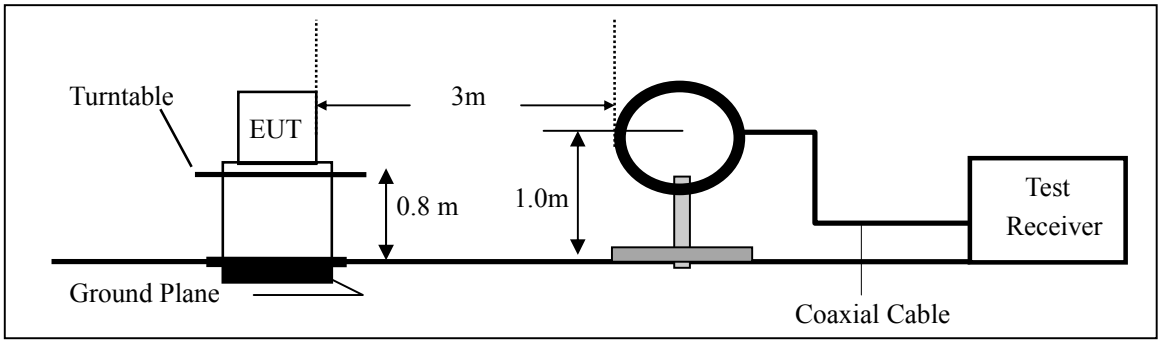
Remark :1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.

7.2.3 Measuring Instruments

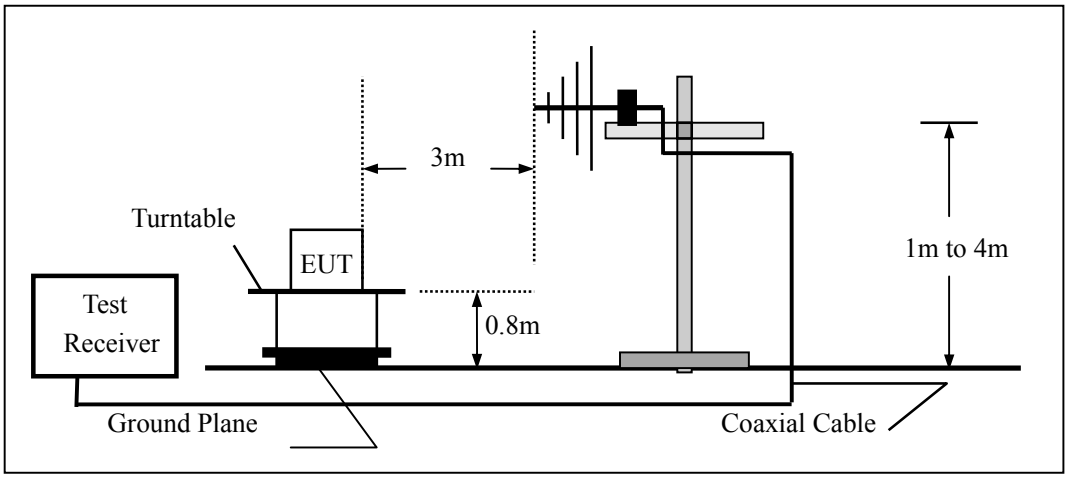
The Measuring equipment is listed in the section 6.3 of this test report.

7.2.4 Test Configuration

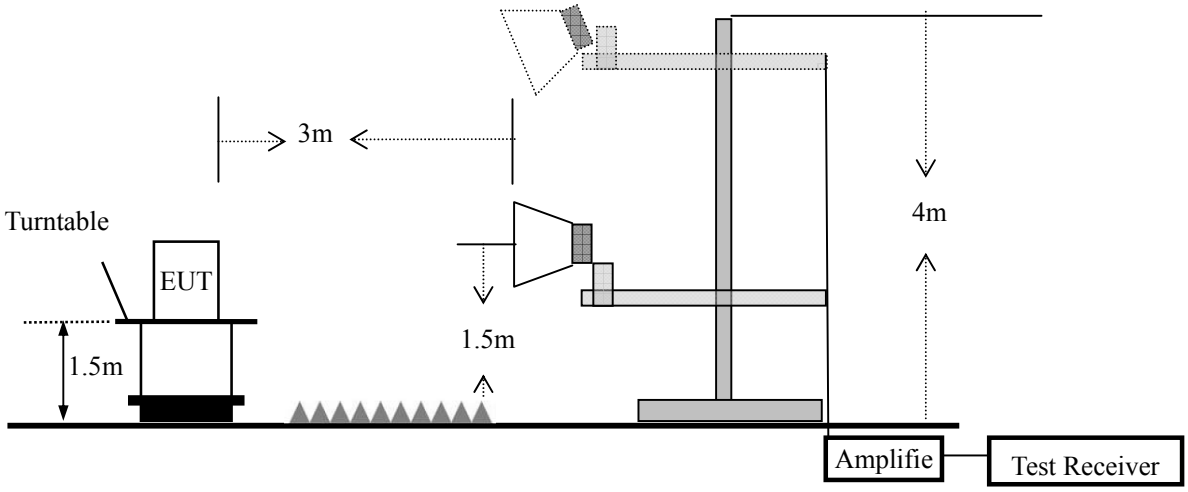
(a) For radiated emissions below 30MHz



(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. 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:
For peak measurement:
Set RBW=100 kHz for f < 1 GHz; VBW≥RBW; Sweep = auto; Detector function = peak; Trace = max hold;
Set RBW = 1 MHz, VBW= 3MHz for f≥1 GHz
For average measurement:
VBW = 10 Hz, when duty cycle is no less than 98 percent.
VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

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:	Smartphone	Model No.:	One Glass
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4/Mode5	Test By:	Eileen Liu

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

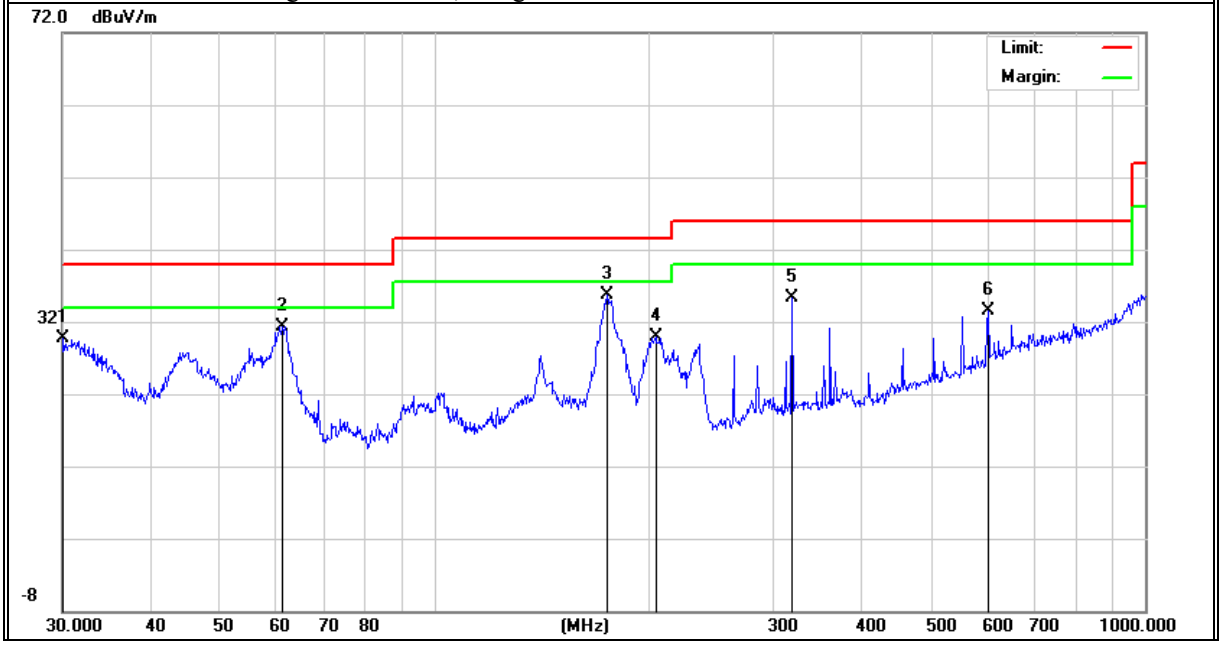
Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
Distance extrapolation factor =20log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor

■ Spurious Emission below 1GHz (30MHz to 1GHz)
All the modulation modes have been tested, and the worst result was report as below:

EUT：	Smartphone	Model Name ：	One Glass
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010hPa	Test Mode：	Mode 1
Test Voltage ：	DC 3.8V		

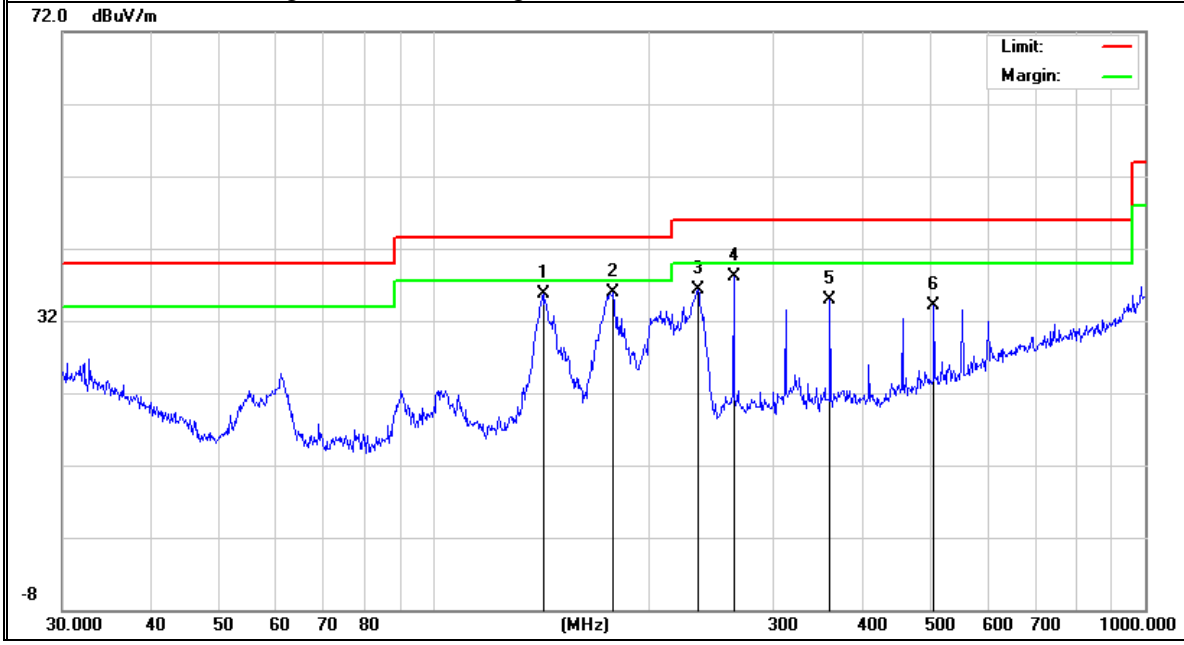
Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	30.1052	9.52	20.20	29.72	40.00	-10.28	QP
V	61.1316	24.56	6.76	31.32	40.00	-8.68	QP
V	175.0368	22.32	13.48	35.80	43.50	-7.70	QP
V	204.9550	17.04	12.85	29.89	43.50	-13.61	QP
V	318.8170	20.89	14.44	35.33	46.00	-10.67	QP
V	601.4265	12.84	20.68	33.52	46.00	-12.48	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	142.3243	23.40	12.23	35.63	43.50	-7.87	QP
H	178.7584	22.71	13.27	35.98	43.50	-7.52	QP
H	234.9909	24.21	12.01	36.22	46.00	-9.78	QP
H	263.8190	25.55	12.46	38.01	46.00	-7.99	QP
H	360.4476	19.24	15.65	34.89	46.00	-11.11	QP

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



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

EUT:	Smartphone	Model No.:	One Glass
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4/Mode5	Test By:	Eileen Liu

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									
4824.358	66.59	5.21	35.59	44.30	63.09	74.00	-10.91	Pk	Vertical
4824.358	42.17	5.21	35.59	44.30	38.67	54.00	-15.33	AV	Vertical
7236.124	60.53	6.48	36.27	44.60	58.68	74.00	-15.32	Pk	Vertical
7236.124	44.44	6.48	36.27	44.60	42.59	54.00	-11.41	AV	Vertical
4824.361	62.29	5.21	35.55	44.30	58.75	74.00	-15.25	Pk	Horizontal
4824.361	42.11	5.21	35.55	44.30	38.57	54.00	-15.43	AV	Horizontal
7236.296	63.68	6.48	36.27	44.52	61.91	74.00	-12.09	Pk	Horizontal
7236.296	46.74	6.48	36.27	44.52	44.97	54.00	-9.03	AV	Horizontal
Low Channel (2437 MHz)(802.11b)--Above 1G									
4874.212	62.51	5.21	35.66	44.20	59.18	74.00	-14.82	Pk	Vertical
4874.212	43.22	5.21	35.66	44.20	39.89	54.00	-14.11	AV	Vertical
7311.193	59.55	7.10	36.50	44.43	58.72	74.00	-15.28	Pk	Vertical
7311.193	49.96	7.10	36.50	44.43	49.13	54.00	-4.87	AV	Vertical
4874.239	62.34	5.21	35.66	44.20	59.01	74.00	-14.99	Pk	Horizontal
4874.239	46.69	5.21	35.66	44.20	43.36	54.00	-10.64	AV	Horizontal
7311.142	59.86	7.10	36.50	44.43	59.03	74.00	-14.97	Pk	Horizontal
7311.142	43.33	7.10	36.50	44.43	42.50	54.00	-11.50	AV	Horizontal
Low Channel (2462 MHz)(802.11b)--Above 1G									
4924.185	61.14	5.21	35.52	44.21	57.66	74.00	-16.34	Pk	Vertical
4924.185	42.25	5.21	35.52	44.21	38.77	54.00	-15.23	AV	Vertical
7386.269	60.85	7.10	36.53	44.60	59.88	74.00	-14.12	Pk	Vertical
7386.269	42.96	7.10	36.53	44.60	41.99	54.00	-12.01	AV	Vertical
4924.106	63.03	5.21	35.52	44.21	59.55	74.00	-14.45	Pk	Horizontal
4924.106	48.71	5.21	35.52	44.21	45.23	54.00	-8.77	AV	Horizontal
7386.417	60.59	7.10	36.53	44.60	59.62	74.00	-14.38	Pk	Horizontal
7386.417	42.25	7.10	36.53	44.60	41.28	54.00	-12.72	AV	Horizontal

Note: (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3)All other emissions more than 20dB below the limit.
(4) 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.

7.3 BAND EDGE COMPLIANCE OF EMISSION

7.3.1 Test Requirement

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c))

7.3.2 Test Proceduce

According to KDB 558074 D01 V03 for Antenna-port conducted measurement. Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Remove the antenna from the EUT and then connect to a low loss RF cable from the antenna port to a EMI test receiver, then turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge, for Radiated emissions restricted band RBW=1MHz, VBW=3MHz for peak detector and RBW=1MHz, VBW=10Hz for average detector.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.
6. Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency (see 12.2.2, 12.2.3, and 12.2.4 for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
7. Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see 12.2.5 for guidance on determining the applicable antenna gain)
8. Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).
9. For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (e.g., Watts, mW).
10. Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:
    E = EIRP – 20log D + 104.8
    where:
    E = electric field strength in dBμV/m,
    EIRP = equivalent isotropic radiated power in dBm
    D = specified measurement distance in meters.
11. Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case

shall a value less than 2 dBi be used.
12. Compare the resultant electric field strength level to the applicable regulatory limit.
13. Perform radiated spurious emission test dures until all measured frequencies were complete.

7.3.3 Limits

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)

7.3.4 Test Results

Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Ground Reflection Factor (dB)	Covert Radiated E Level At 3m (dBuV/m)	Detector	Limit (dBuV/m)	Mode
2390.00	-49.82	1.00	0.00	46.438	Peak	74.00	802.11b
2390.00	-62.03	1.00	0.00	34.228	AV	54.00	
2410.64	5.24	1.00	0.00	101.498	Peak	---	
2411.24	0.93	1.00	0.00	97.188	AV	---	
2463.65	5.45	1.00	0.00	101.708	Peak	---	
2464.69	1.07	1.00	0.00	97.328	AV	---	
2483.50	-47.71	1.00	0.00	48.548	Peak	74.00	
2483.50	-59.36	1.00	0.00	36.898	AV	54.00	

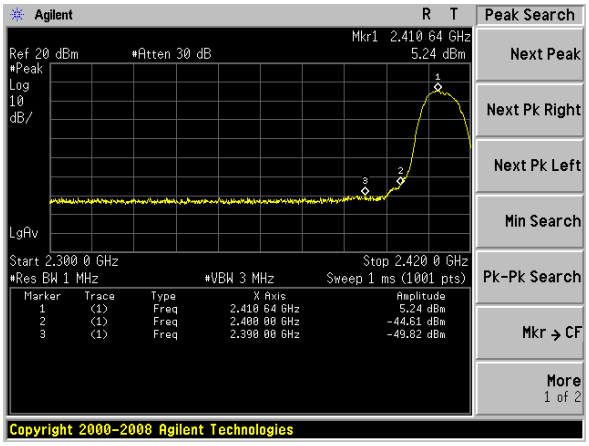
Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Ground Reflection Factor (dB)	Covert Radiated E Level At 3m (dBuV/m)	Detector	Limit (dBuV/m)	Mode
2390.00	-47.83	1.00	0.00	48.428	Peak	74.00	802.11g
2390.00	-59.95	1.00	0.00	36.308	AV	54.00	
2409.13	6.94	1.00	0.00	103.198	Peak	---	
2410.88	-9.19	1.00	0.00	87.068	AV	---	
2467.00	9.65	1.00	0.00	105.908	Peak	---	
2461.20	-7.32	1.00	0.00	88.938	AV	---	
2483.50	-31.90	1.00	0.00	64.358	Peak	74.00	
2483.50	-51.19	1.00	0.00	45.068	AV	54.00	

Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Ground Reflection Factor (dB)	Covert Radiated E Level At 3m (dBuV/m)	Detector	Limit (dBuV/m)	Mode
2390.000	-46.70	1.00	0.00	49.558	Peak	74.00	802.11n20
2390.000	-58.50	1.00	0.00	37.758	AV	54.00	
2409.75	6.97	1.00	0.00	103.228	Peak	---	
2410.75	-9.55	1.00	0.00	86.708	AV	---	
2467.00	9.57	1.00	0.00	105.828	Peak	---	
2467.20	-7.55	1.00	0.00	88.708	AV	---	
2483.500	-25.88	1.00	0.00	70.378	Peak	74.00	
2483.500	-48.88	1.00	0.00	47.378	AV	54.00	

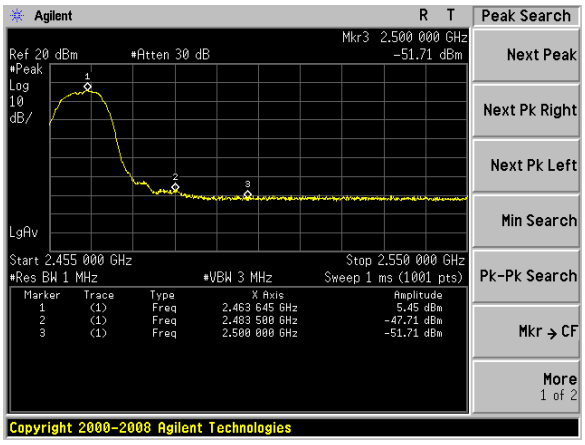
Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Ground Reflection Factor (dB)	Covert Radiated E Level At 3m (dBuV/m)	Detector	Limit (dBuV/m)	Mode
2390.000	-31.37	1.00	0.00	64.888	Peak	74.00	802.11n40
2390.000	-55.45	1.00	0.00	40.808	AV	54.00	
2411.94	3.58	1.00	0.00	99.838	Peak	---	
2409.48	-18.56	1.00	0.00	77.698	AV	---	
2447.40	4.85	1.00	0.00	101.108	Peak	---	
2445.60	-16.94	1.00	0.00	79.318	AV	---	
2483.500	-30.12	1.00	0.00	66.138	Peak	74.00	
2483.500	-55.08	1.00	0.00	41.178	AV	54.00	

Test plot

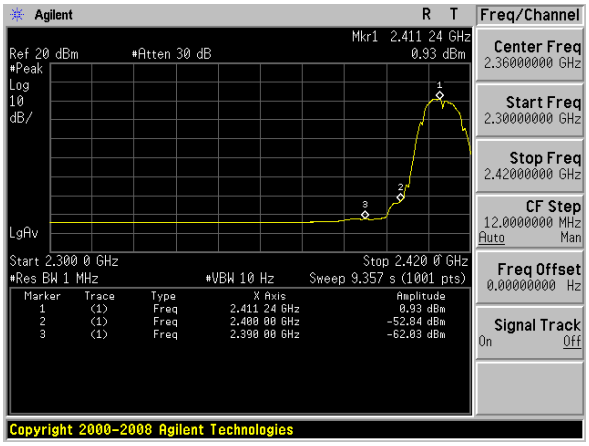
(802.11b) plot on channel 1



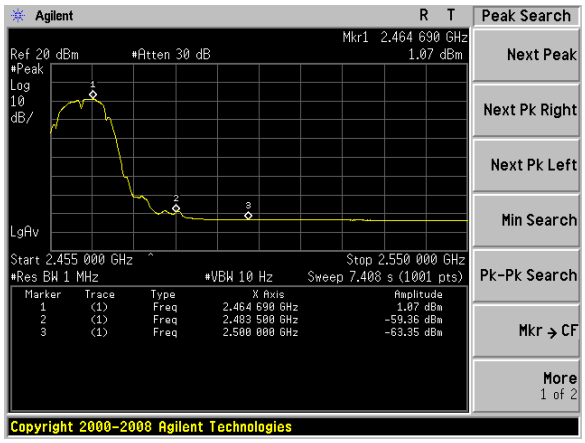
(802.11b) plot on channel 11



(802.11b) plot on channel 1

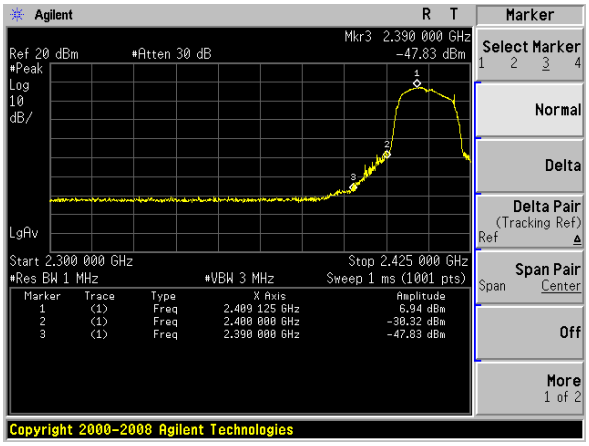


(802.11b) plot on channel 11

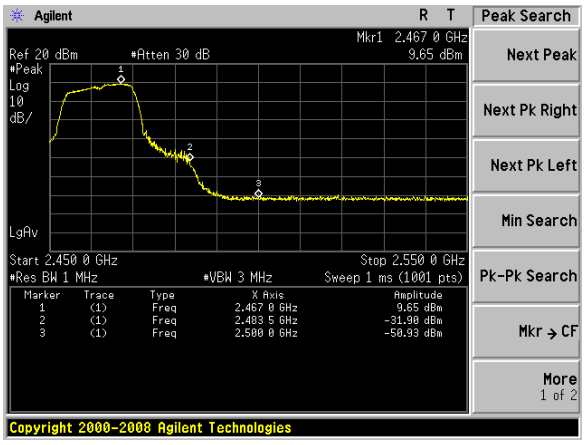


Test plot

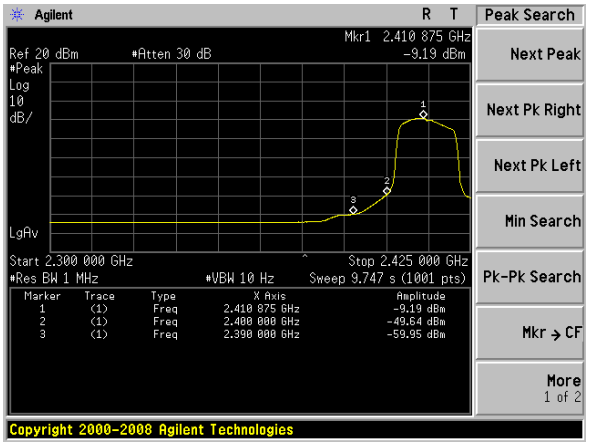
(802.11g) plot on channel 1



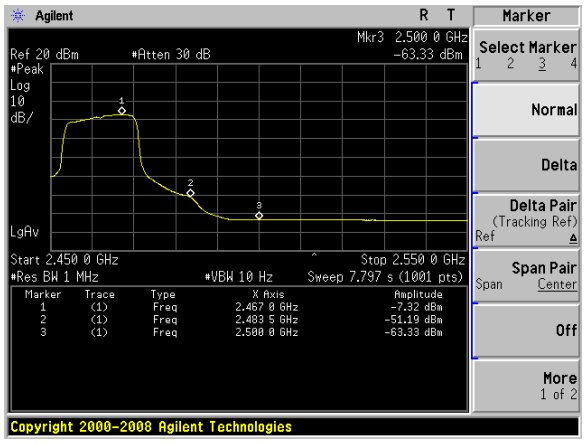
(802.11g) plot on channel 11



(802.11g) plot on channel 1

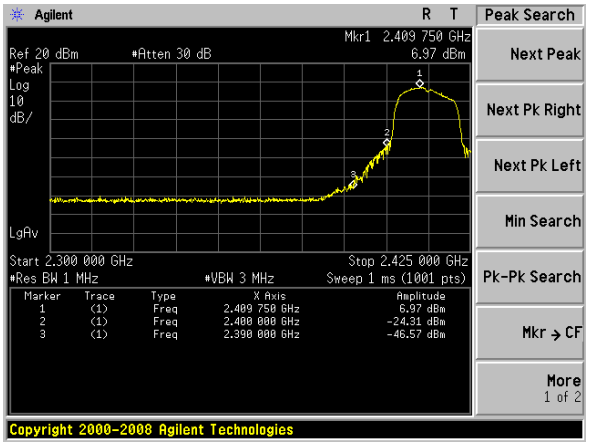


(802.11g) plot on channel 11

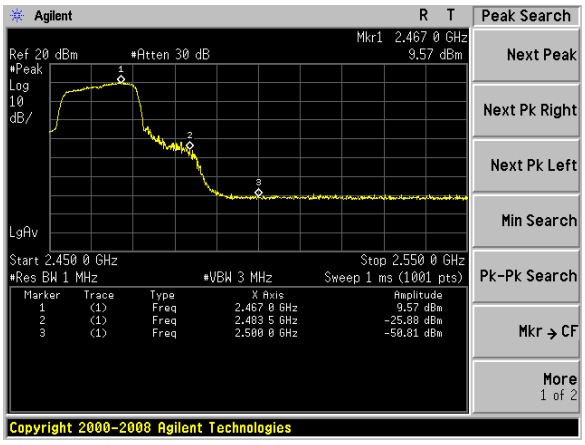


Test plot

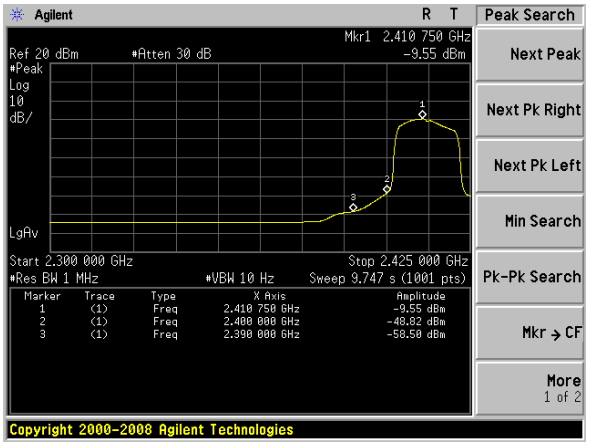
(802.11n20) plot on channel 1



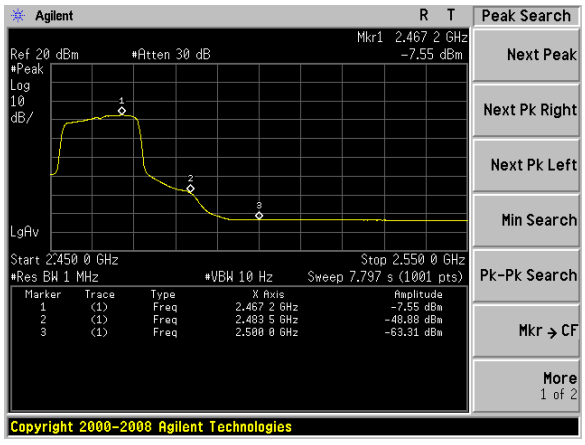
(802.11n20) plot on channel 11



(802.11 n20) plot on channel 1

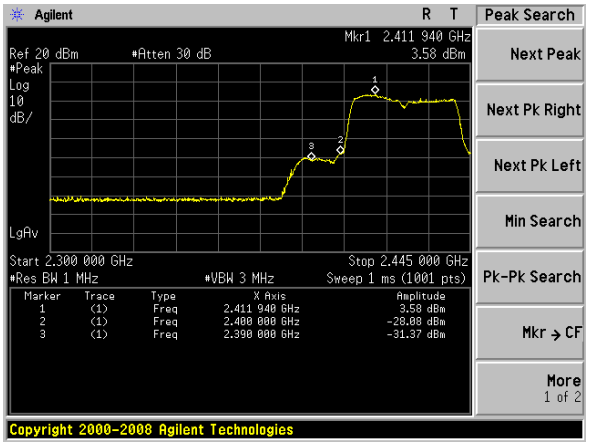


(802.11 n20) plot on channel 11

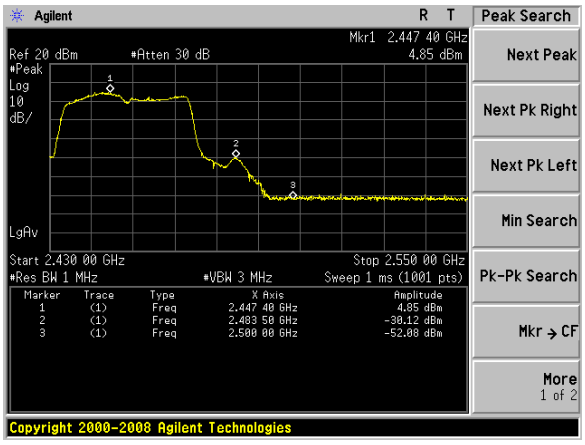


Test plot

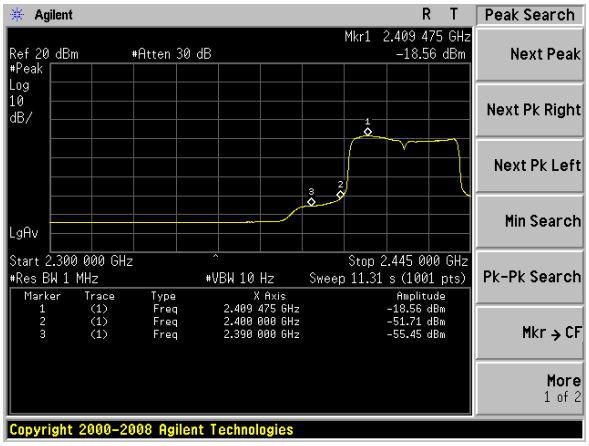
(802.11n40) plot on channel 3



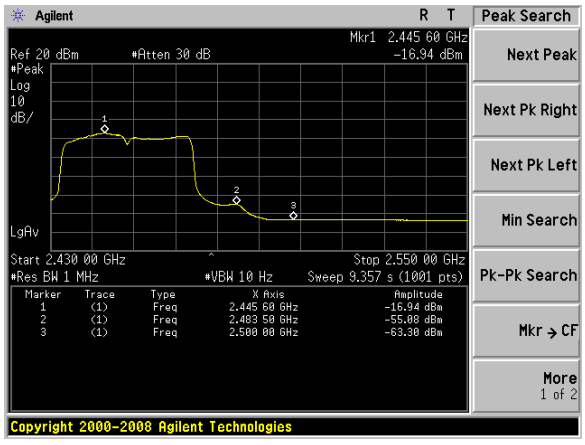
(802.11n40) plot on channel 9



(802.11 n40) plot on channel 3



(802.11 n40) plot on channel 9



7.4 6DB 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

The minimum permissible 6dB bandwidth is 500 kHz.

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

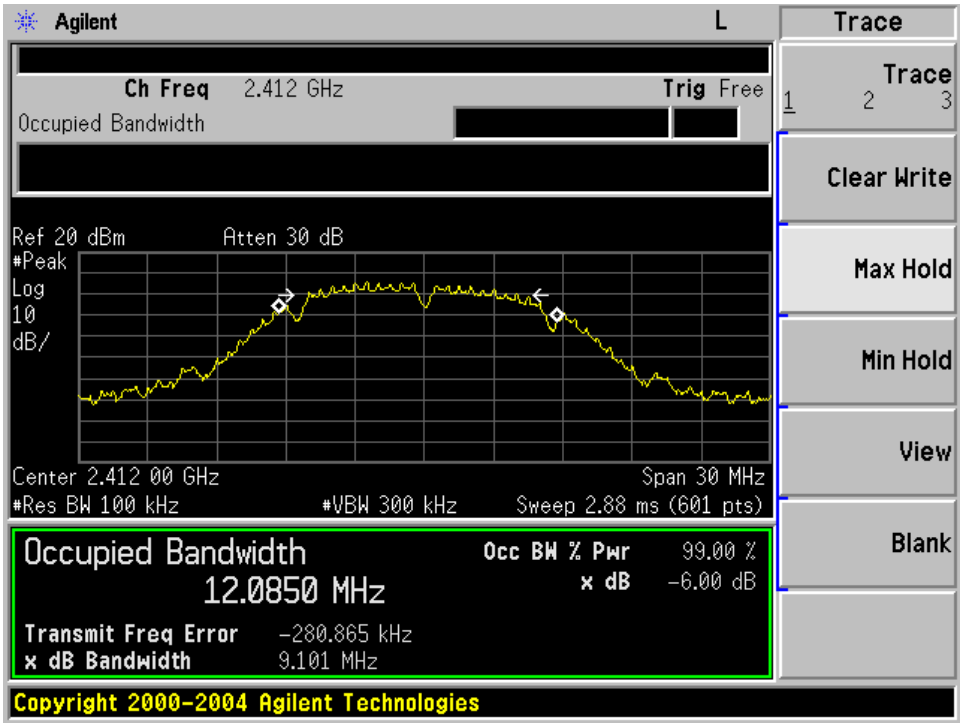
The testing follows KDB 558074 DTS 01 Meas. Guidance v03r05
The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
Set to the maximum power setting and enable the EUT transmit continuously.
The EUT was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

7.4.6 Test Results

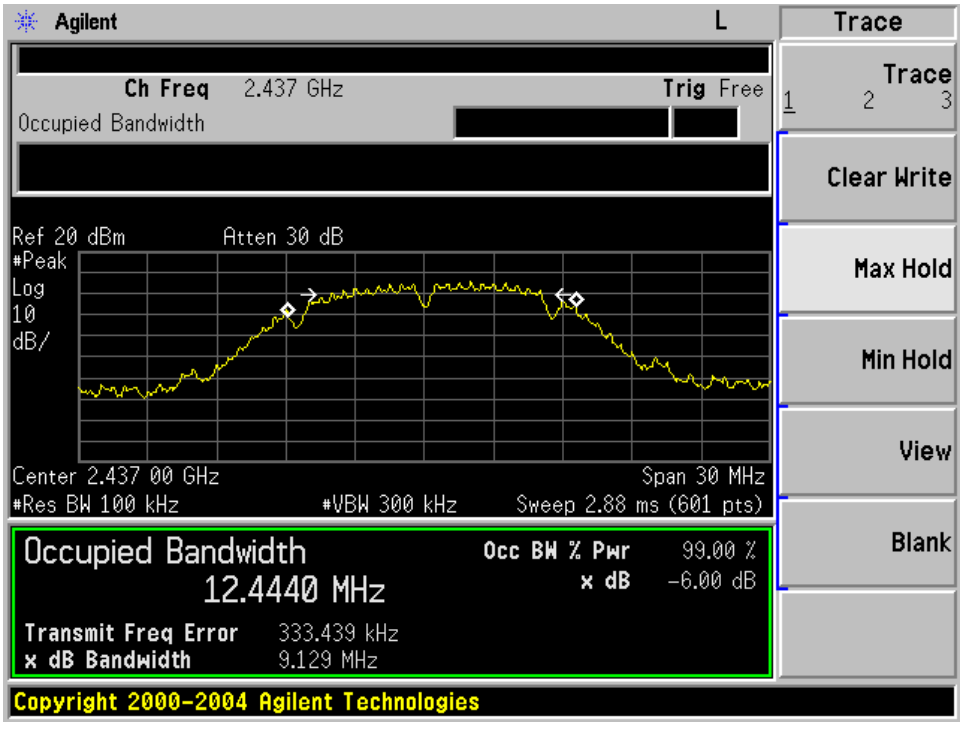
EUT:	Smartphone	Model No.:	One Glass
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4/Mode5	Test By:	Eileen Liu

Channel	Frequency (MHz)	6dB bandwidth (kHz)	Limit (kHz)	Result
802.11b				
1	2412	9101.000	500	Pass
6	2437	9129.000	500	Pass
11	2462	9137.000	500	Pass
802.11g				
1	2412	13864.000	500	Pass
6	2437	11698.000	500	Pass
11	2462	15781.000	500	Pass
802.11n HT20				
1	2412	13842.000	500	Pass
6	2437	15083.000	500	Pass
11	2462	16391.000	500	Pass
802.11n HT40				
3	2422	35371.000	500	Pass
6	2437	35078.000	500	Pass
9	2452	35635.000	500	Pass

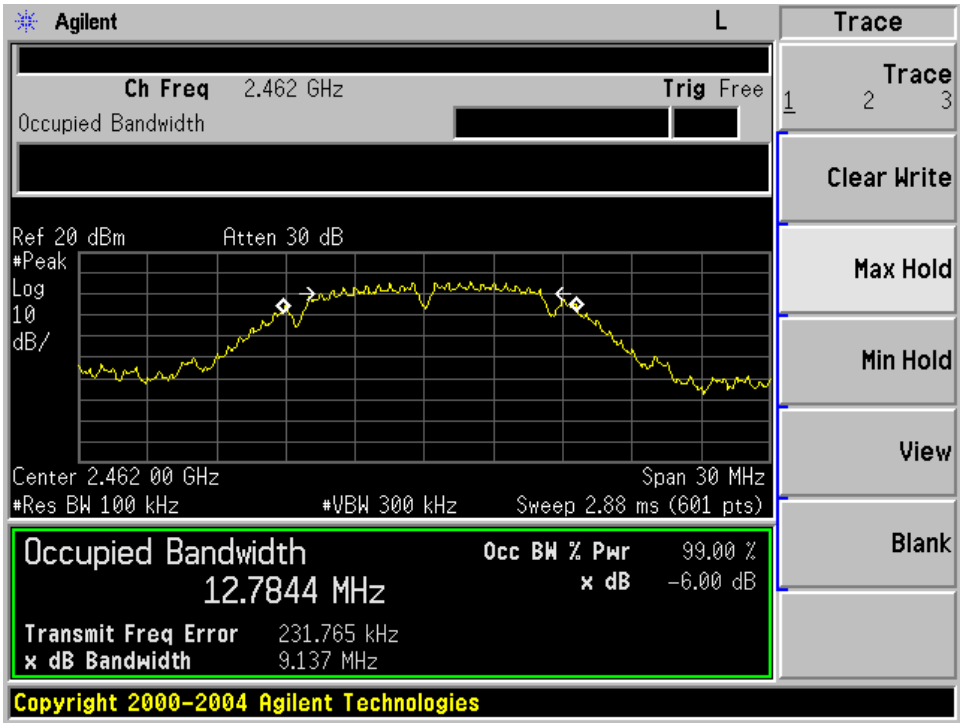
6dB Bandwidth plot on channel 1	802.11b



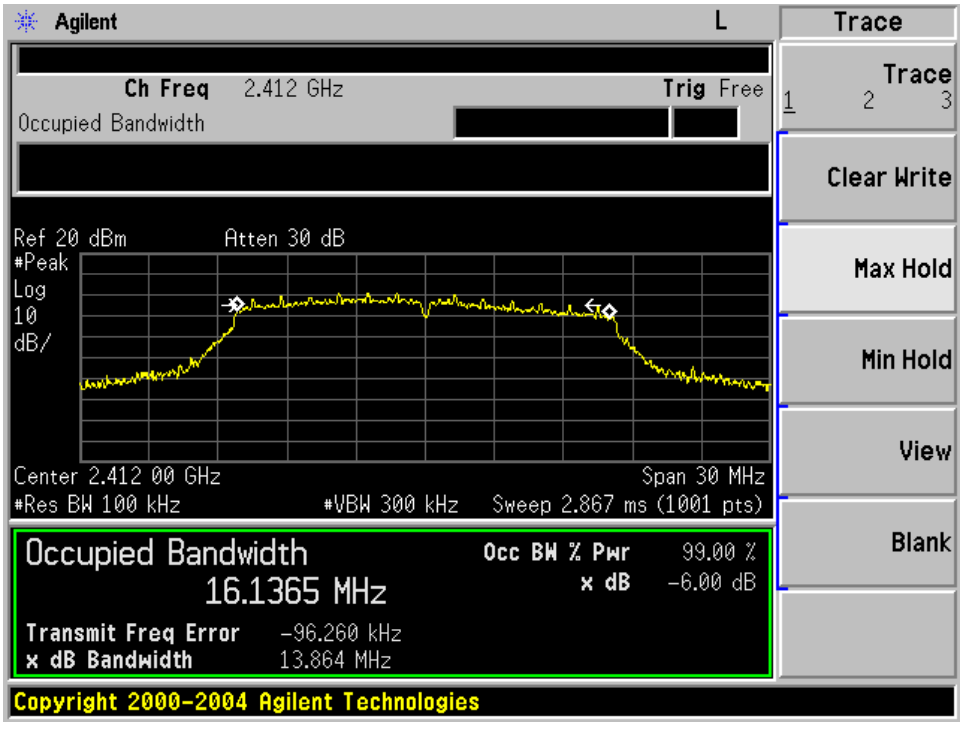
6dB Bandwidth plot on channel 6	802.11b



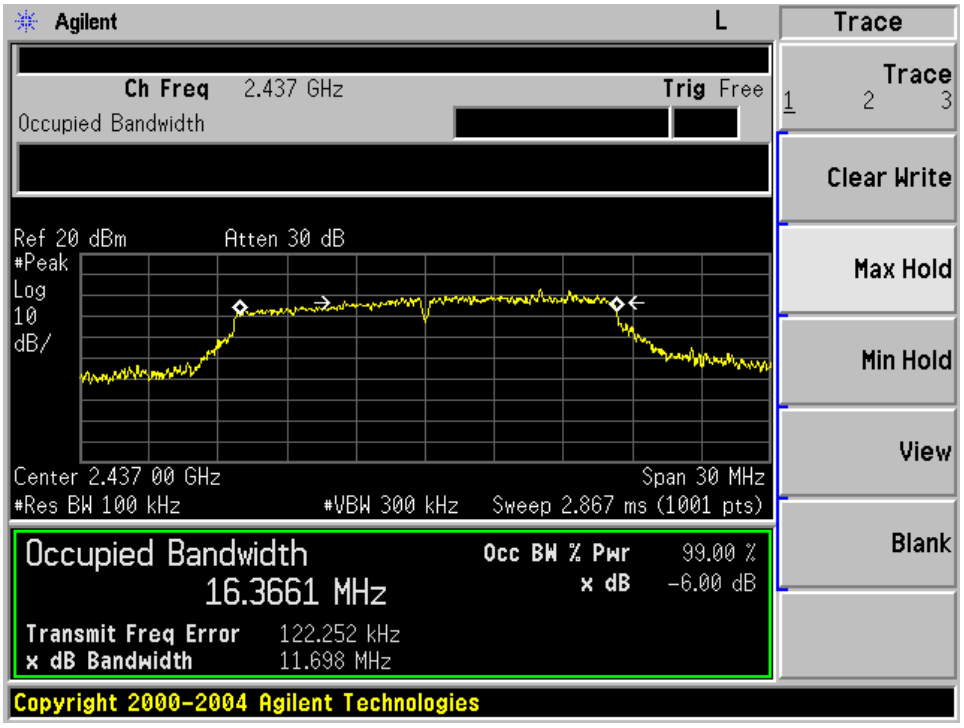
6dB Bandwidth plot on channel 11	802.11b



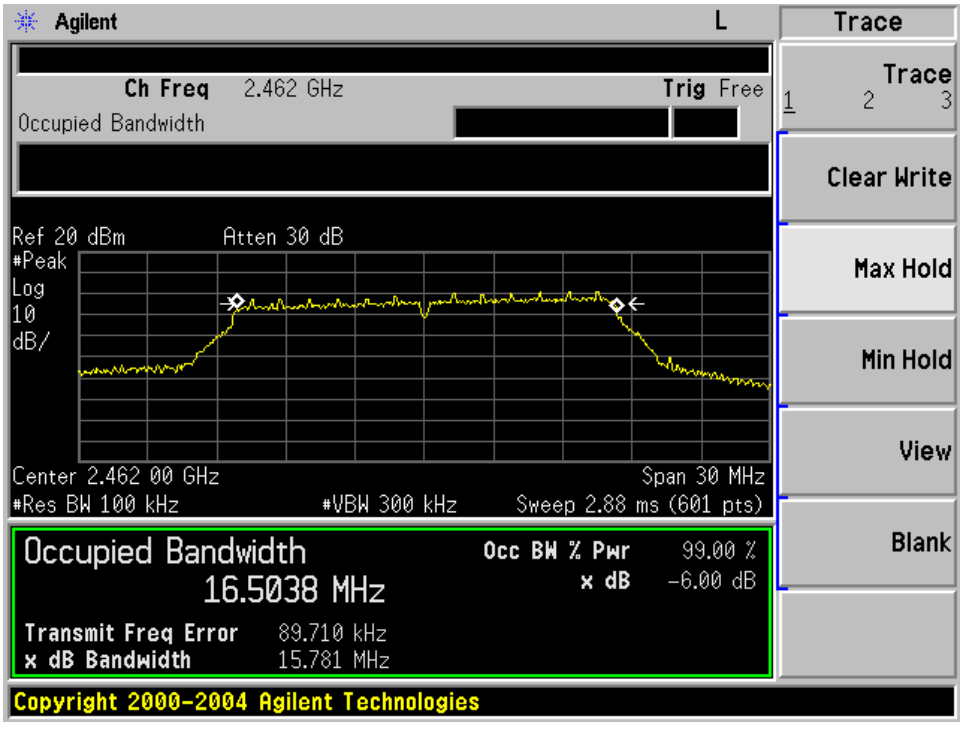
6dB Bandwidth plot on channel 1	802.11g



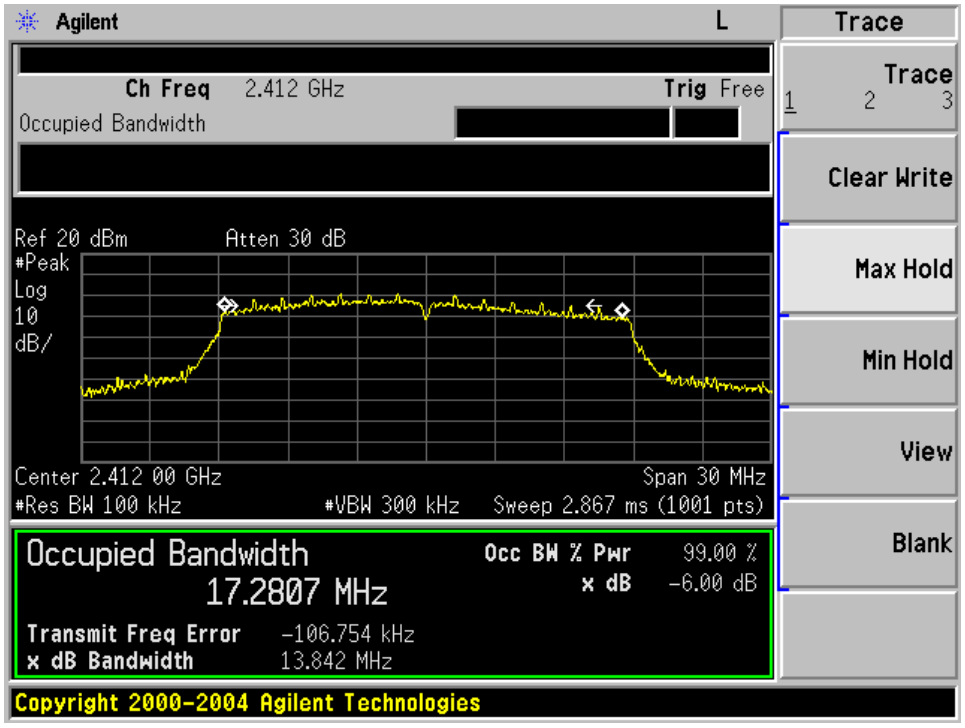
6dB Bandwidth plot on channel 6	802.11g



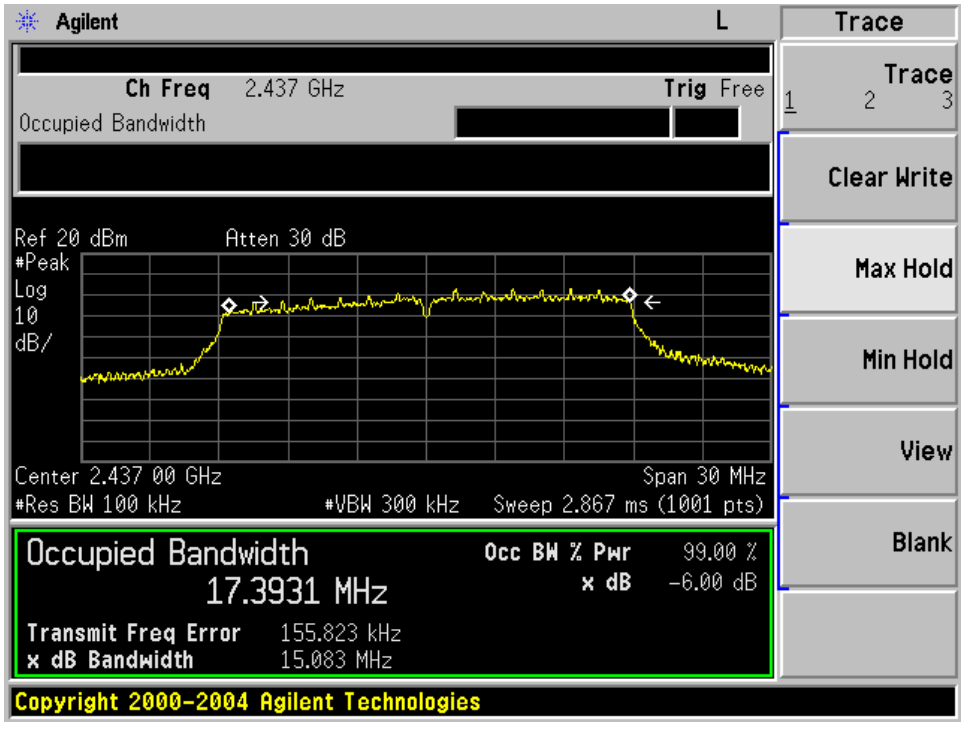
6dB Bandwidth plot on channel 11	802.11g



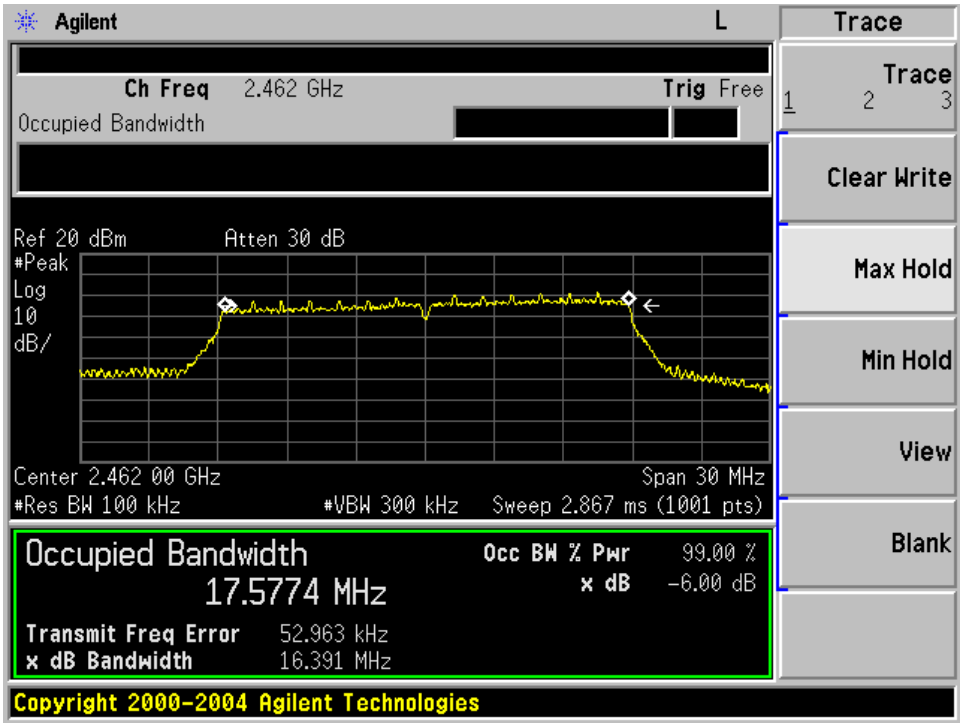
6dB Bandwidth plot on channel 1	802.11n HT20



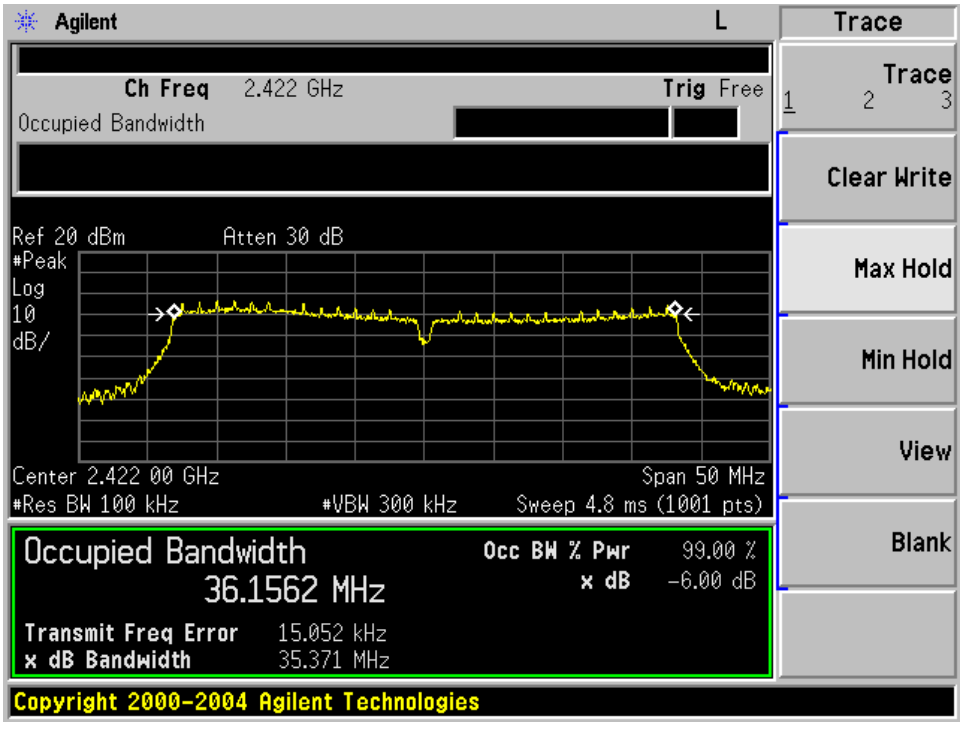
6dB Bandwidth plot on channel 6	802.11n HT20



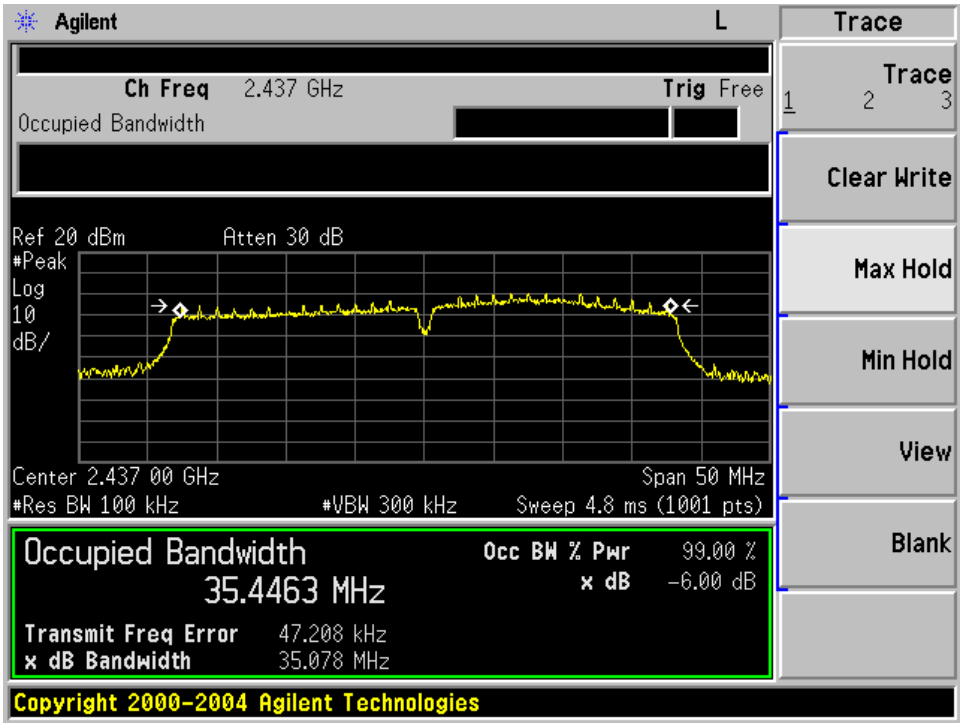
6dB Bandwidth plot on channel 11	802.11n HT20



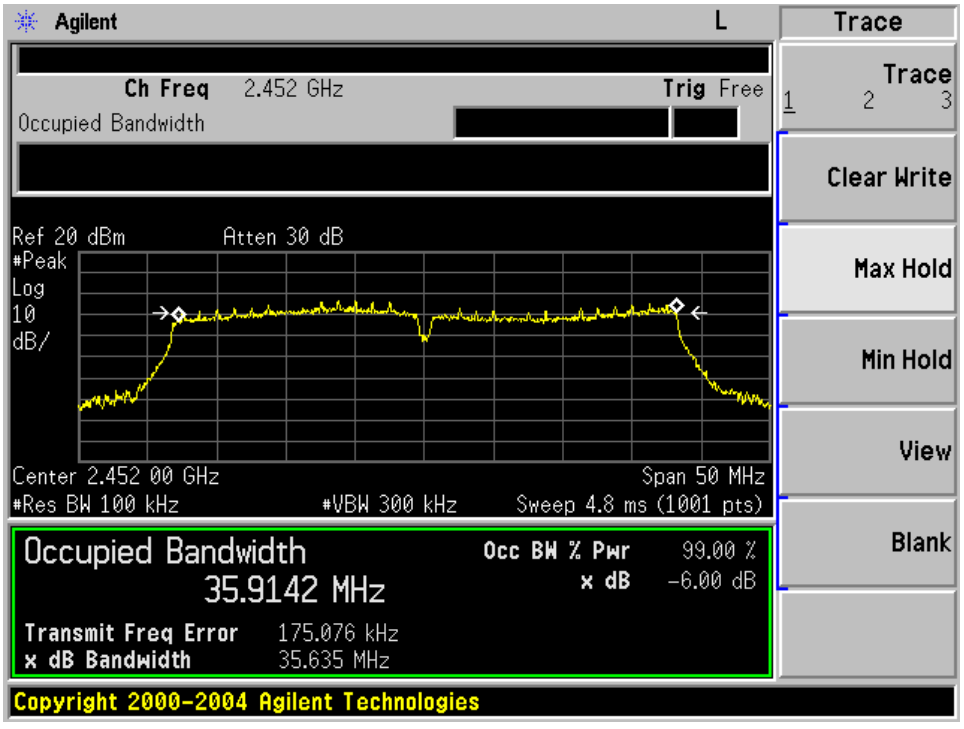
6dB Bandwidth plot on channel 3	802.11n HT40



6dB Bandwidth plot on channel 6	802.11n HT40



6dB Bandwidth plot on channel 9	802.11n HT40



7.5 20DB BANDWIDTH

7.5.1 Applicable Standard

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

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 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

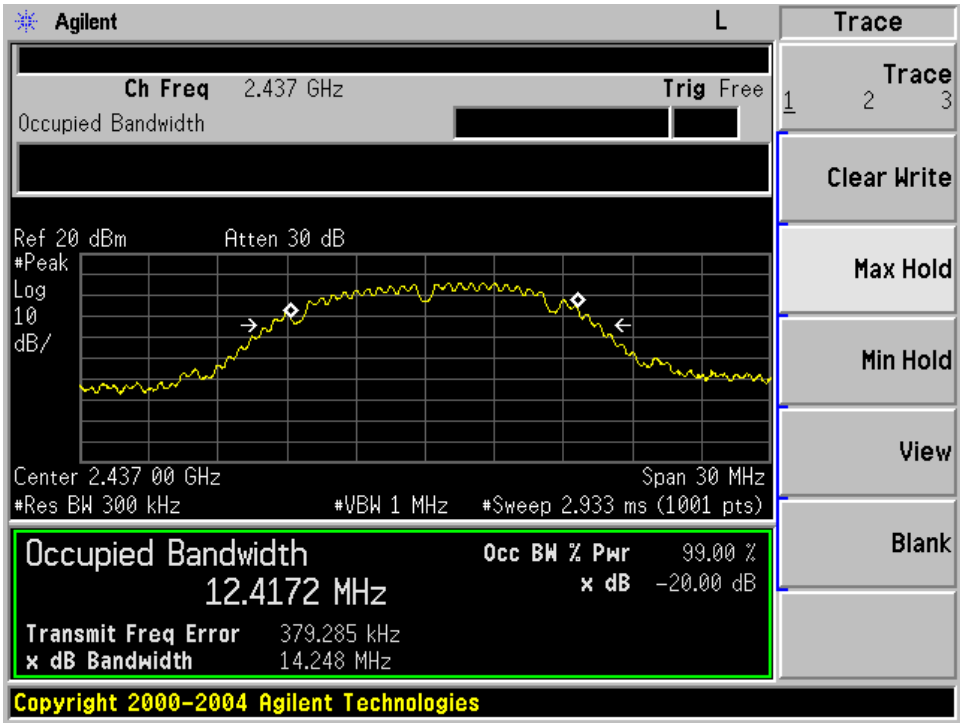
7.5.6 Test Results

EUT:	Smartphone	Model No.:	One Glass
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4/Mode5	Test By:	Eileen Liu

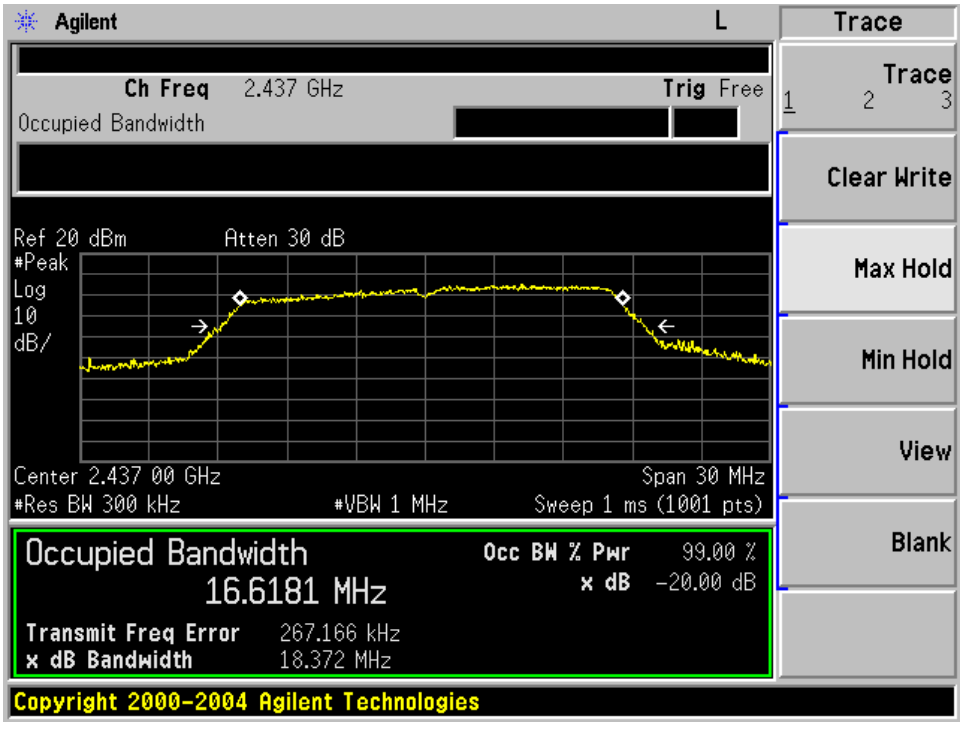
All the bands and channels were tested, the data of the worst mode are described in the following table

Band	Frequency/Channel (MHz)	20dB bandwidth (kHz)	Limit (kHz)	Result
802.11b	2437MHz/CH6	14248.000	N/A	Pass
802.11g	2437MHz/CH6	18372.000	N/A	Pass
802.11n HT20	2437MHz/CH6	18901.000	N/A	Pass
802.11n HT40	2437MHz/CH6	37266.000	N/A	Pass

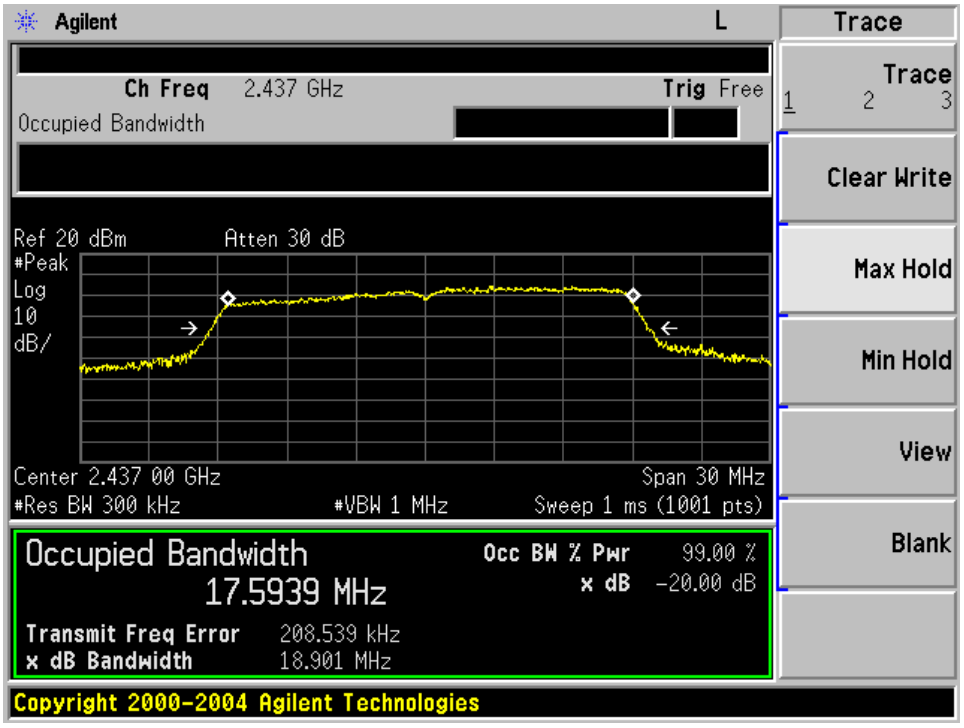
20dB Bandwidth plot on channel 6	802.11b



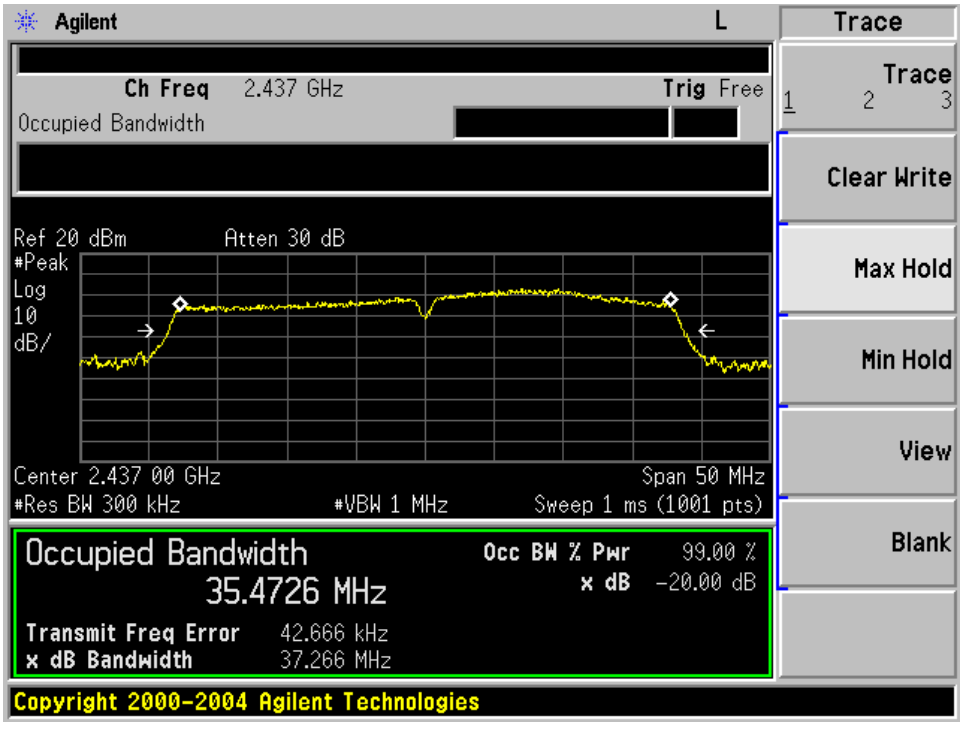
20dB Bandwidth plot on channel 6	802.11g



20dB Bandwidth plot on channel 6	802.11n HT20



20dB Bandwidth plot on channel 6	802.11n HT40



7.6 DUTY CYCLE

7.6.1 Applicable Standard

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

7.6.2 Conformance Limit

No limit requirement.

7.6.3 Measuring Instruments

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

7.6.4 Test Setup

Please refer to Section 6.1 of this test report.

7.6.5 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}

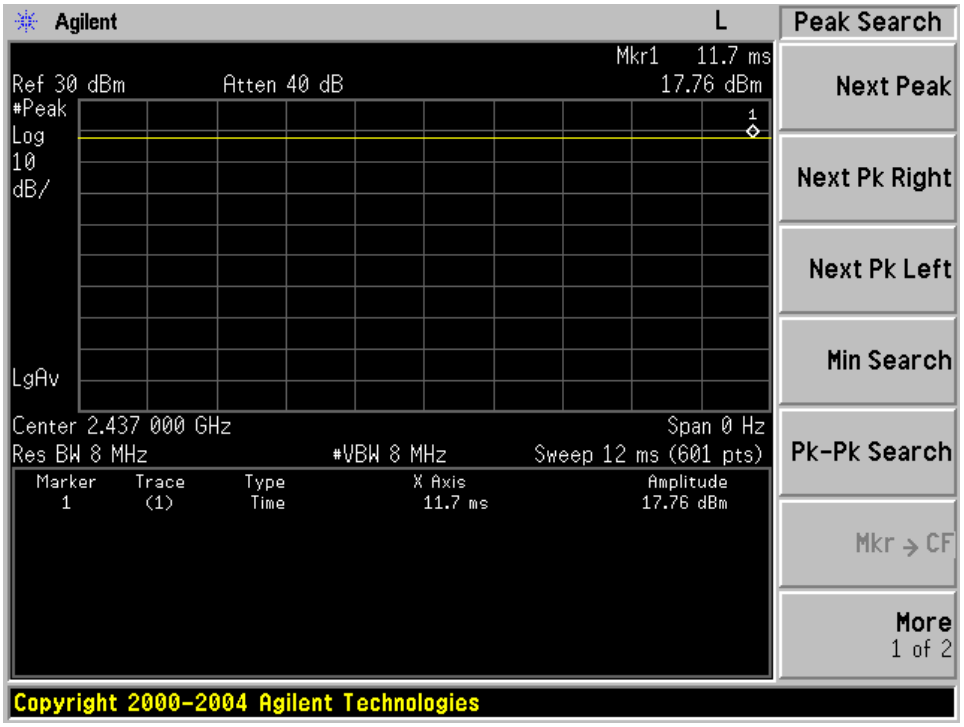
7.6.6 Test Results

EUT:	Smartphone	Model No.:	One Glass
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4/Mode5	Test By:	Eileen Liu

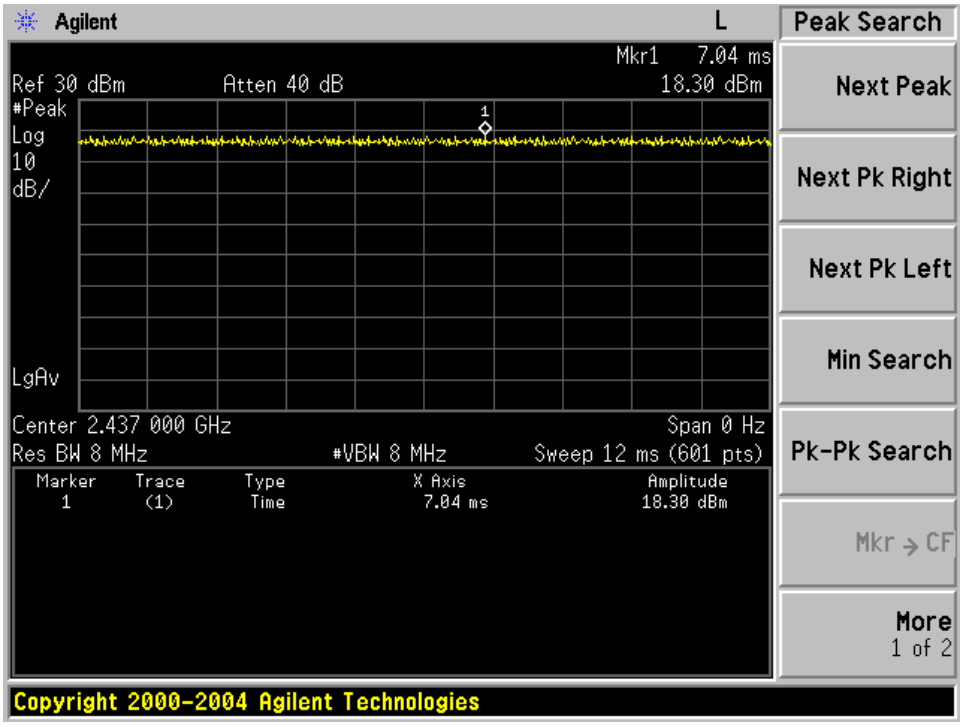
Mode	Data rate	Channel	T_{on}	T_{total}	Duty Cycle	Duty Cycle Factor (dB)	VBW Setting
802.11b	1Mbps	6	-	-	100%	0	10Hz
802.11g	6Mbps	6	-	-	100%	0	10Hz
802.11n HT20	MCS0	6	-	-	100%	0	10Hz
802.11n HT40	MCS0	6	-	-	100%	0	10Hz

Note: All the modulation modes were tested, the data of the worst mode are described in the following table.

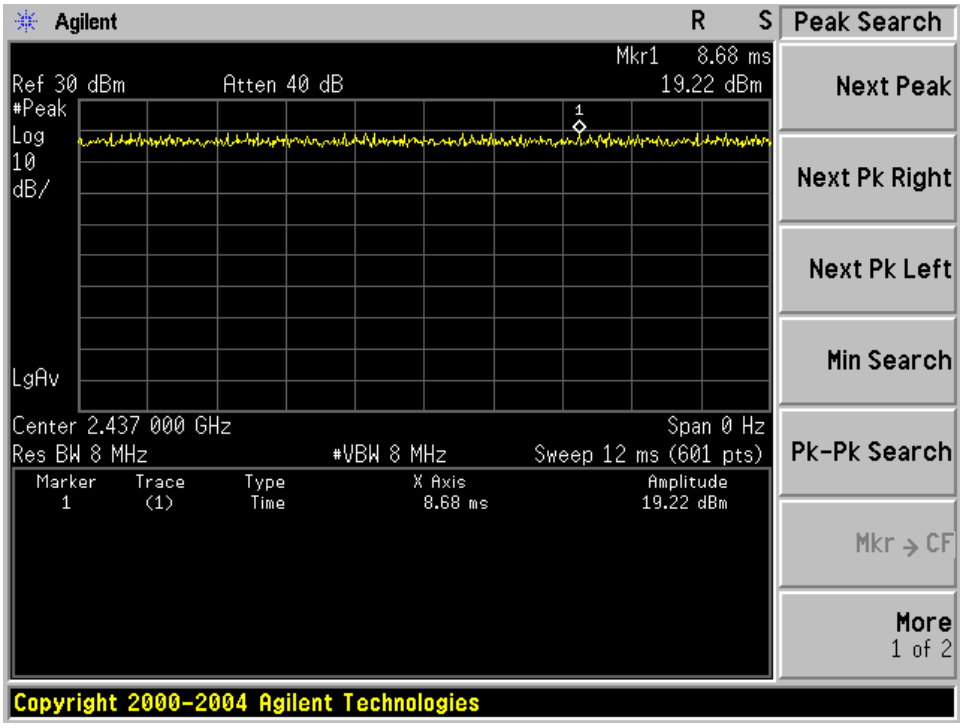
Duty Cycle plot on channel 6	802.11b



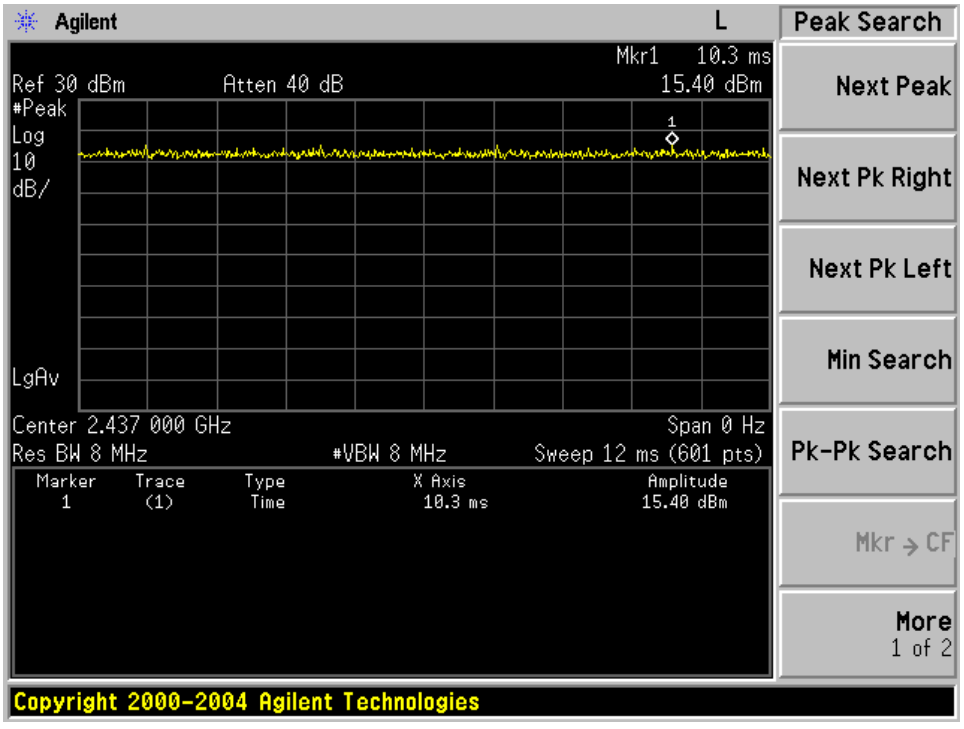
Duty Cycle plot on channel 6	802.11g



Duty Cycle plot on channel 6	802.11n HT20



Duty Cycle plot on channel 6	802.11n HT40



7.7 MAXIMUM OUTPUT POWER

7.7.1 Applicable Standard

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

7.7.2 Conformance Limit

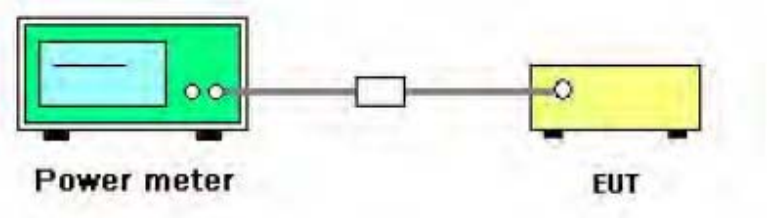
The maximum peak conducted output power of the intentional radiator for systems using digital modulation in the 2400 - 2483.5 MHz bands shall not exceed: 1 Watt (30dBm). If transmitting antenna of directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be 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.

7.7.3 Measuring Instruments

The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	Average

7.7.4 Test Setup



7.7.5 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.

7.7.6 EUT opration during Test

The EUT was programmed to be in continuously transmitting mode.

7.7.7 Test Results

EUT:	Smartphone	Model No.:	One Glass
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4/Mode5	Test By:	Eileen Liu

Test Channel	Frequency (MHz)	Power Setting	Duty Cycle Factor (dB)	Average Output Power (dBm)	Maximum Output Power(dBm)	LIMIT (dBm)	Verdict
	802.11b						
1	2412	Default	0	13.98	13.98	30	PASS
6	2437	Default	0	13.84	13.84	30	PASS
11	2462	Default	0	14.40	14.40	30	PASS
	802.11g						
1	2412	Default	0	9.11	9.11	30	PASS
6	2437	Default	0	10.73	10.73	30	PASS
11	2462	Default	0	10.11	10.11	30	PASS
	802.11n HT20						
1	2412	Default	0	9.44	9.44	30	PASS
6	2437	Default	0	9.39	11.38	30	PASS
11	2462	Default	0	8.83	8.83	30	PASS
	802.11n HT40						
3	2422	Default	0	6.35	6.35	30	PASS
6	2437	Default	0	6.64	6.64	30	PASS
9	2452	Default	0	7.21	7.21	30	PASS

7.8 POWER SPECTRAL DENSITY

7.8.1 Applicable Standard

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

7.8.2 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.

7.8.3 Measuring Instruments

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

7.8.4 Test Setup

Please refer to Section 6.1 of this test report.

7.8.5 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

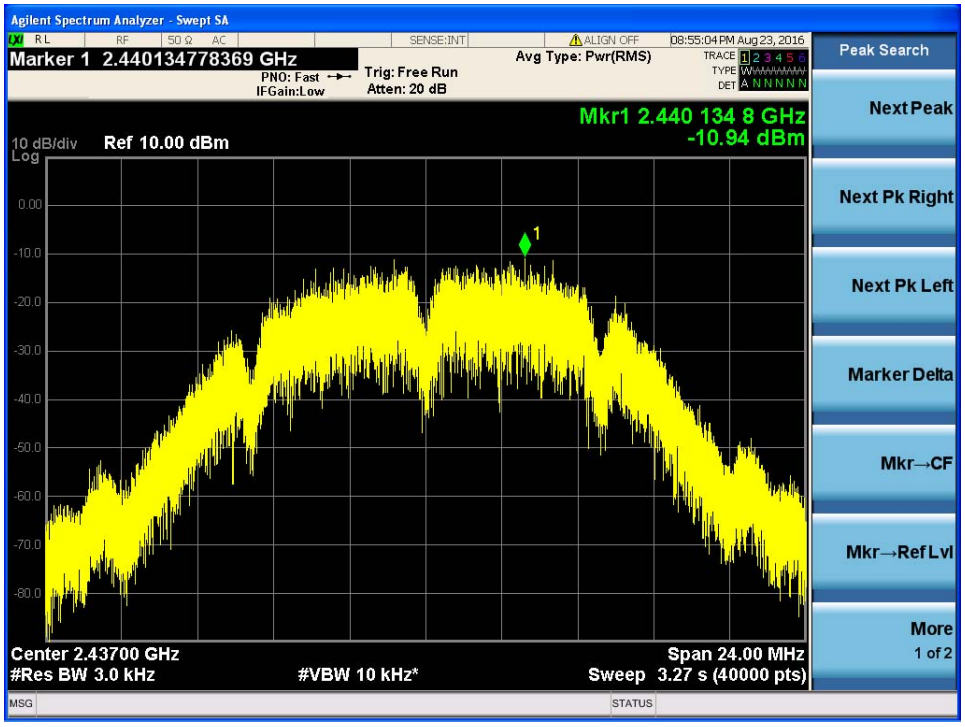
7.8.6 Test Results

EUT:	Smartphone	Model No.:	One Glass
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4/Mode5	Test By:	Eileen Liu

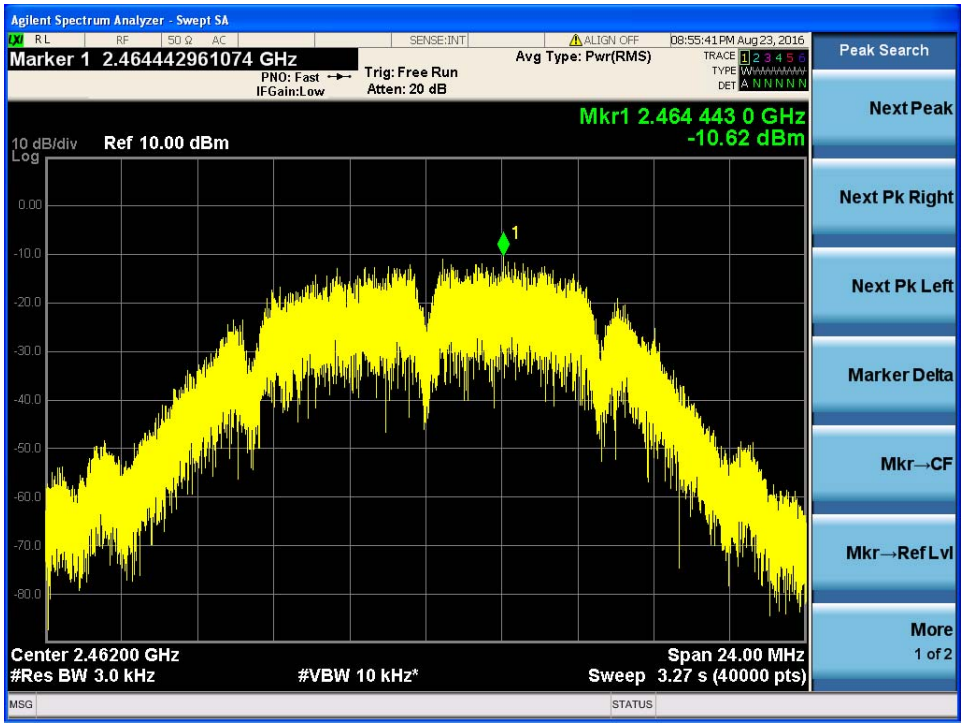
Test Channel	Frequency (MHz)	Duty Cycle Factor(dB)	Power Density (dBm/3KHz)	Limit (dBm/3KHz)	Verdict
	802.11b				
1	2412	0	-9.813	8	PASS
6	2437	0	-10.940	8	PASS
11	2462	0	-10.620	8	PASS
	802.11g				
1	2412	0	-16.270	8	PASS
6	2437	0	-14.990	8	PASS
11	2462	0	-16.600	8	PASS
	802.11n HT20				
1	2412	0	-17.570	8	PASS
6	2437	0	-14.620	8	PASS
11	2462	0	-16.120	8	PASS
	802.11n HT40				
3	2422	0	-22.910	8	PASS
6	2437	0	-17.140	8	PASS
9	2452	0	-21.300	8	PASS

Power spectral density plot on channel 1	802.11b

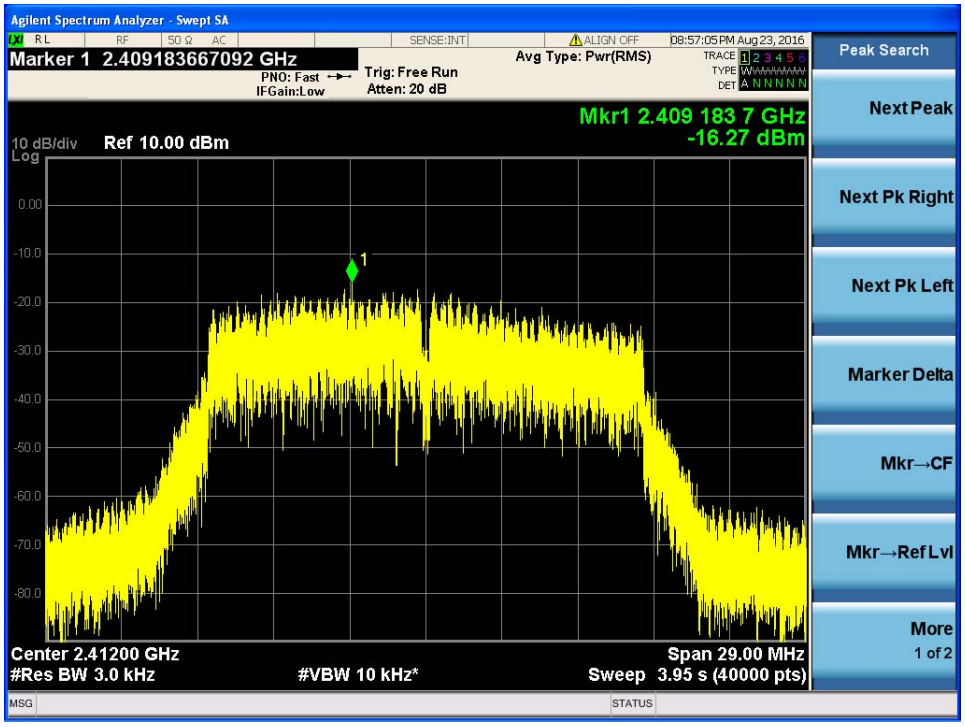
Power spectral density plot on channel 6	802.11b



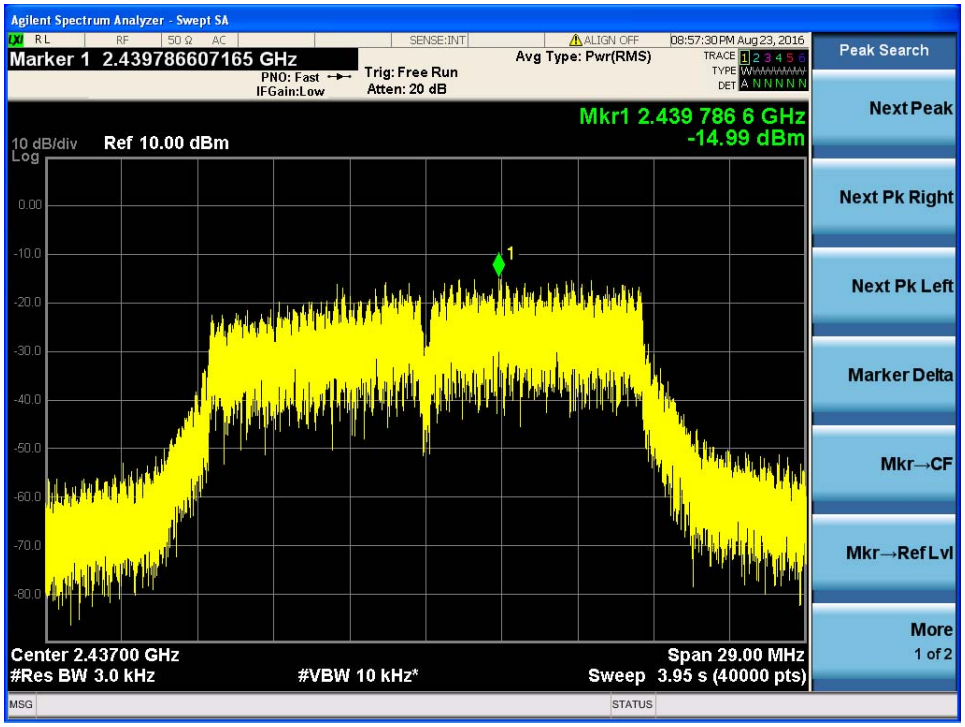
Power spectral density plot on channel 11	802.11b



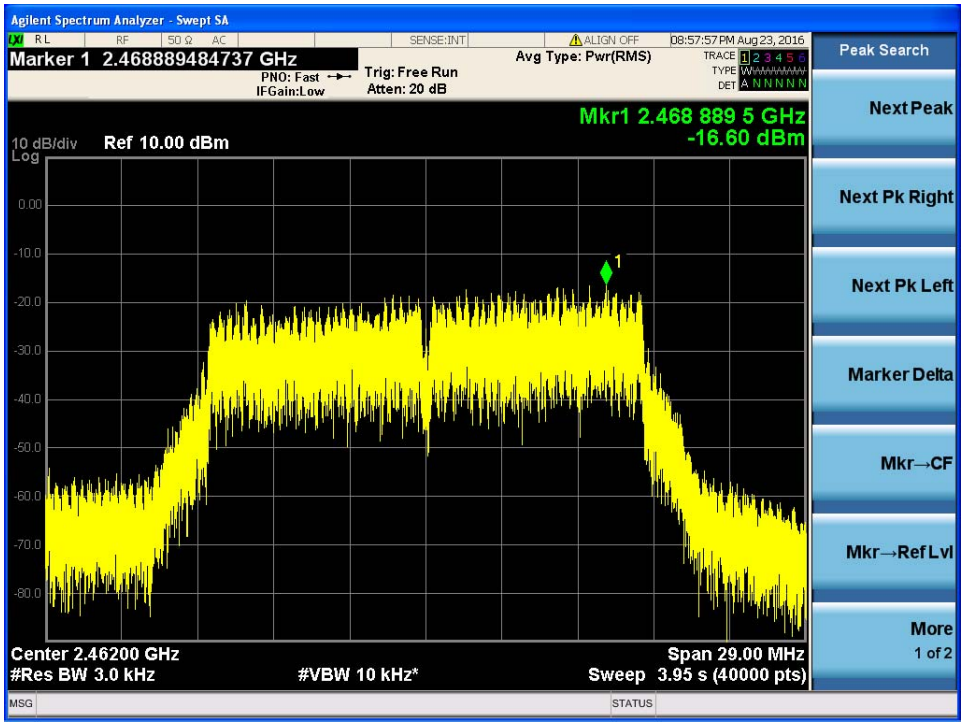
Power spectral density plot on channel 1	802.11g



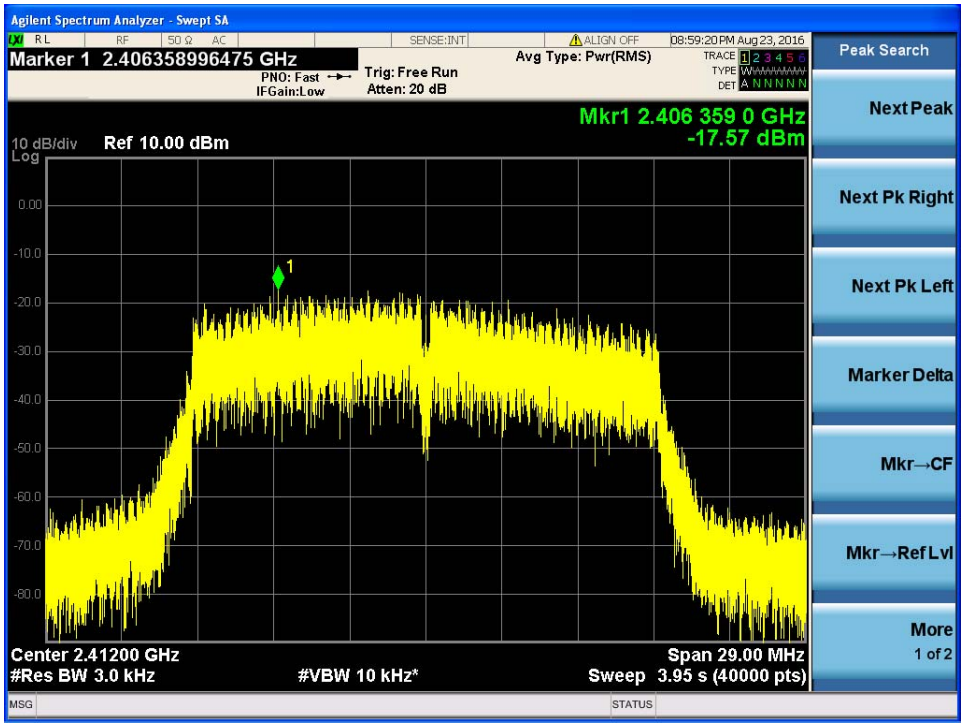
Power spectral density plot on channel 6	802.11g



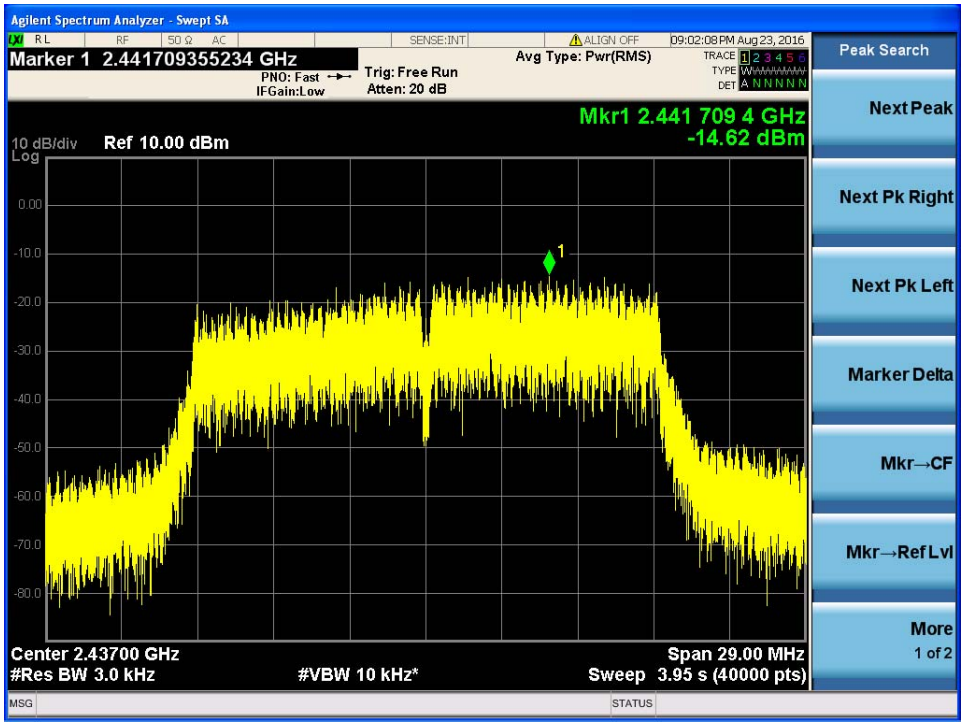
Power spectral density plot on channel 11	802.11g



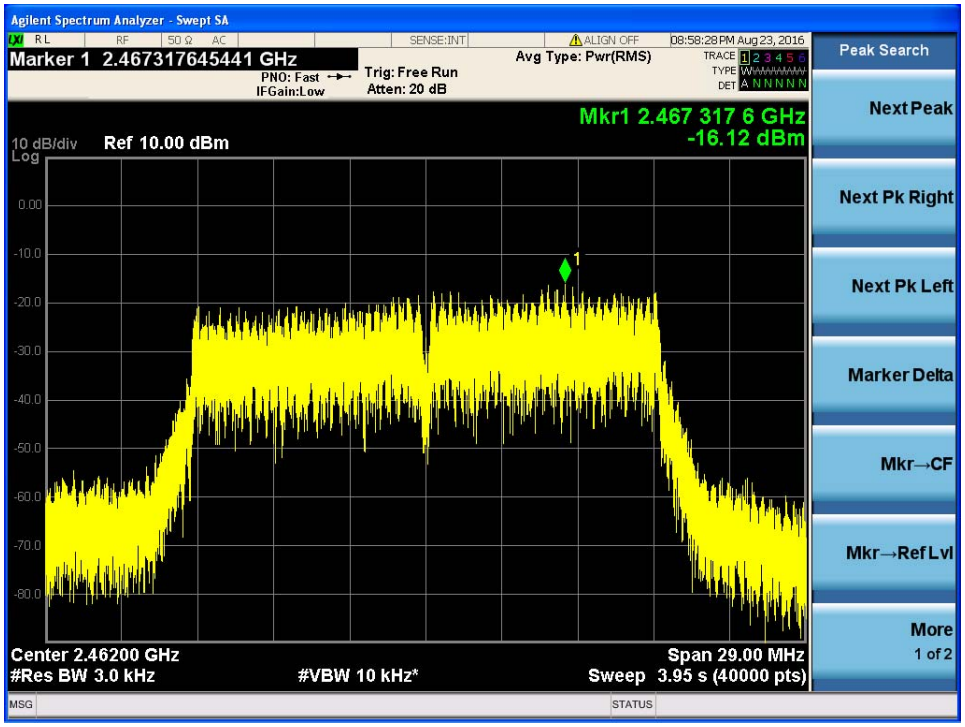
Power spectral density plot on channel 1	802.11n HT20



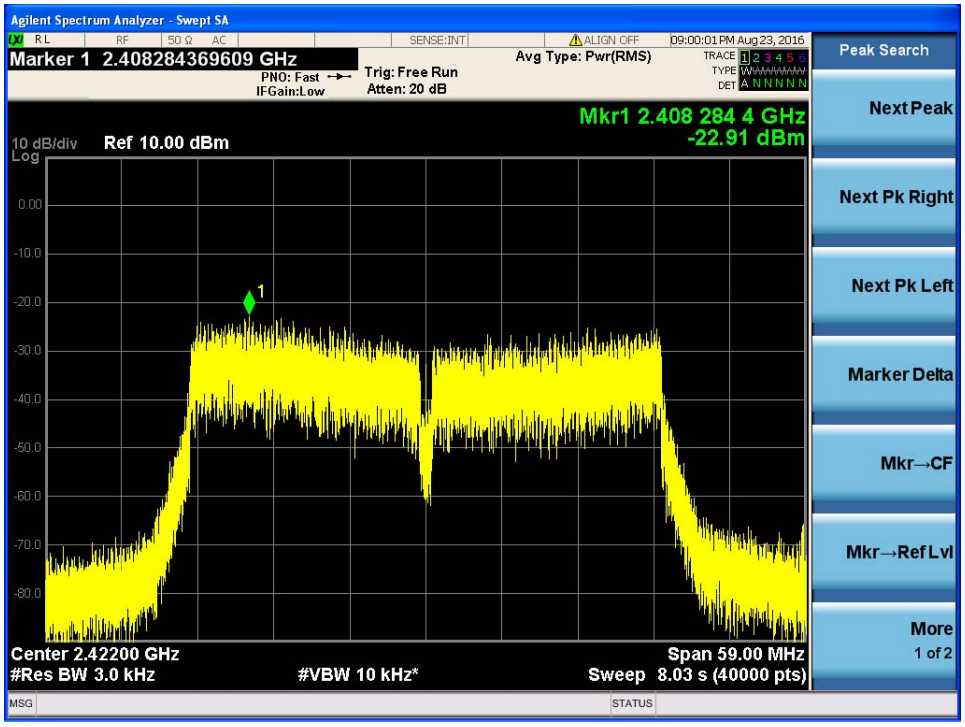
Power spectral density plot on channel 6	802.11n HT20



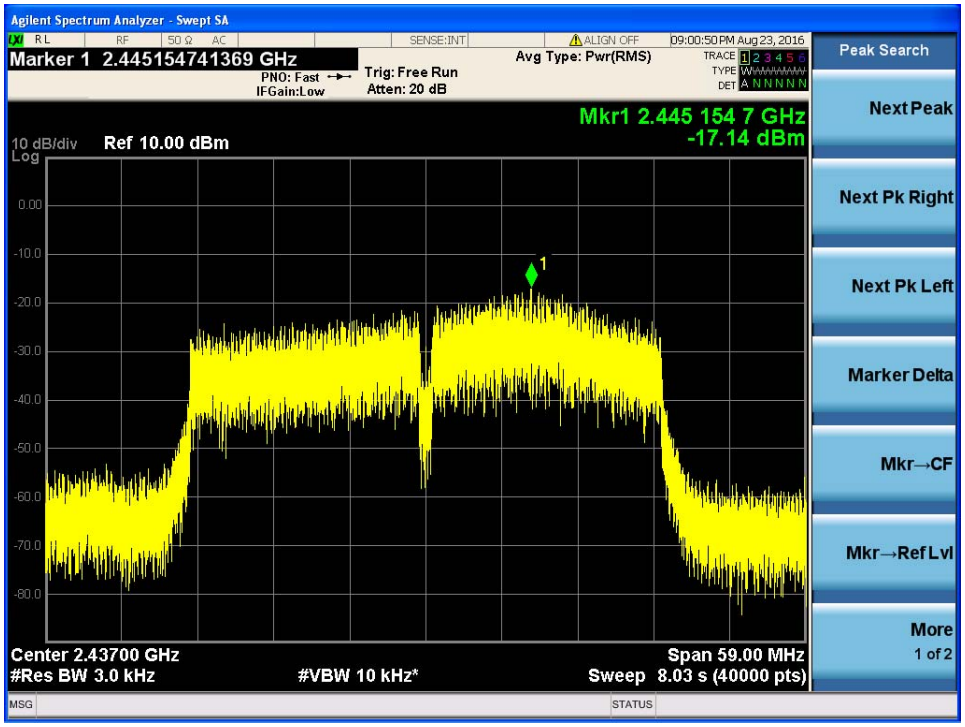
Power spectral density plot on channel 11	802.11n HT20



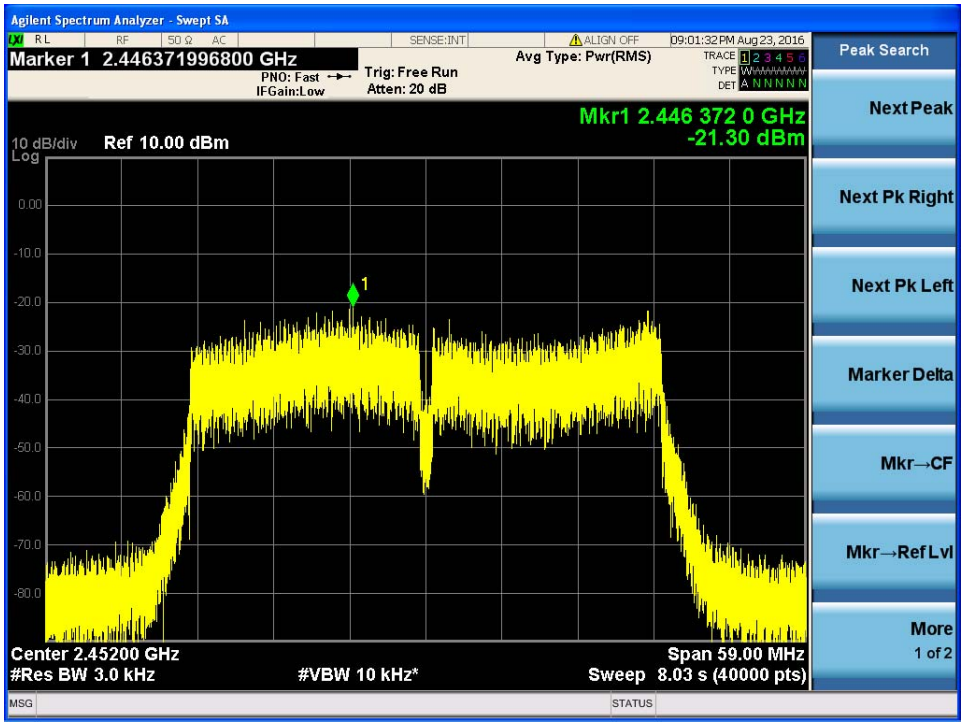
Power spectral density plot on channel 3	802.11n HT40



Power spectral density plot on channel 6	802.11n HT40



Power spectral density plot on channel 9	802.11n HT40



7.9 CONDUCTED BAND EDGE MEASUREMENT

7.9.1 Applicable Standard

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

7.9.2 Conformance Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

7.9.3 Measuring Instruments

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

7.9.4 Test Setup

Please refer to Section 6.1 of this test report.

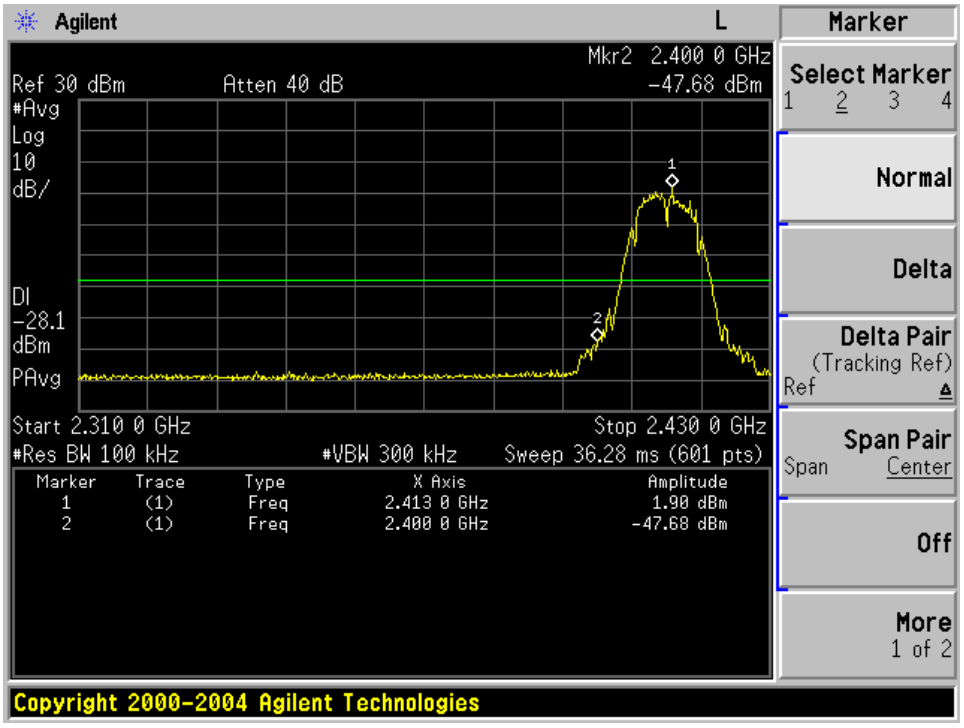
7.9.5 Test Procedure

The testing follows FCC KDB Publication No. 558074 D01 DTS 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.
Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
Repeat above procedures until all measured frequencies were complete.

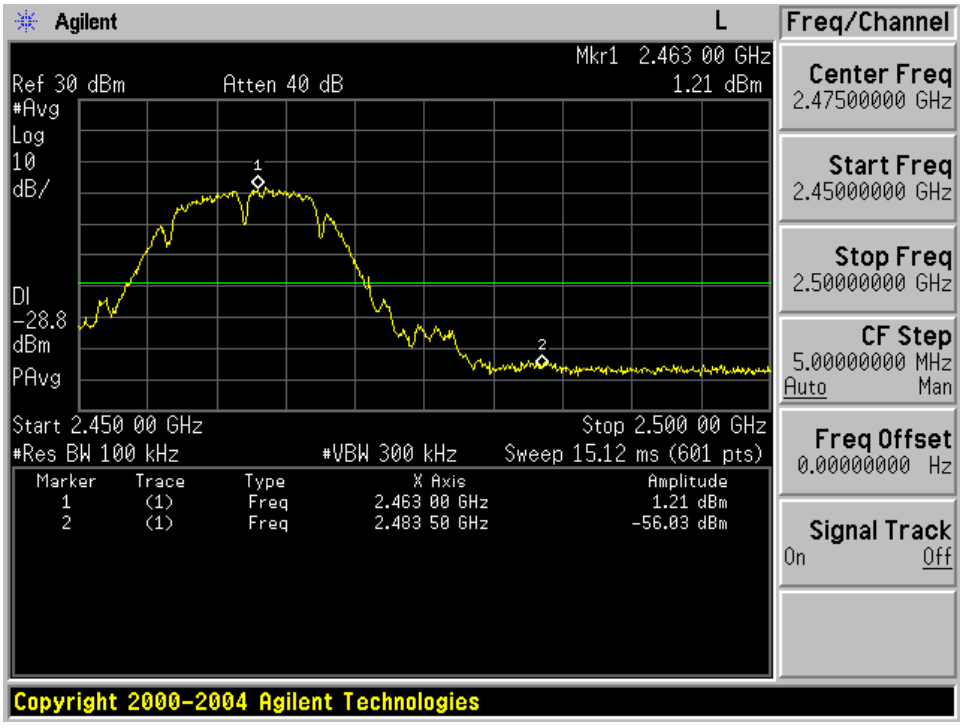
7.9.6 Test Results

EUT:	Smartphone	Model No.:	One Glass
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4/Mode5	Test By:	Eileen Liu

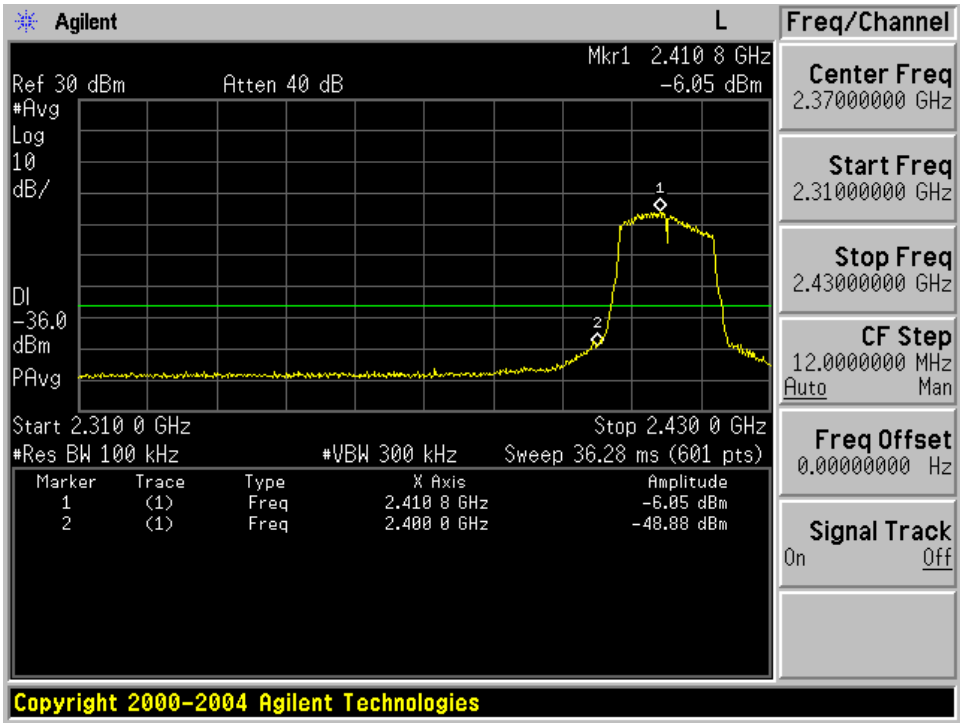
802.11b: Band Edge-Low Channel



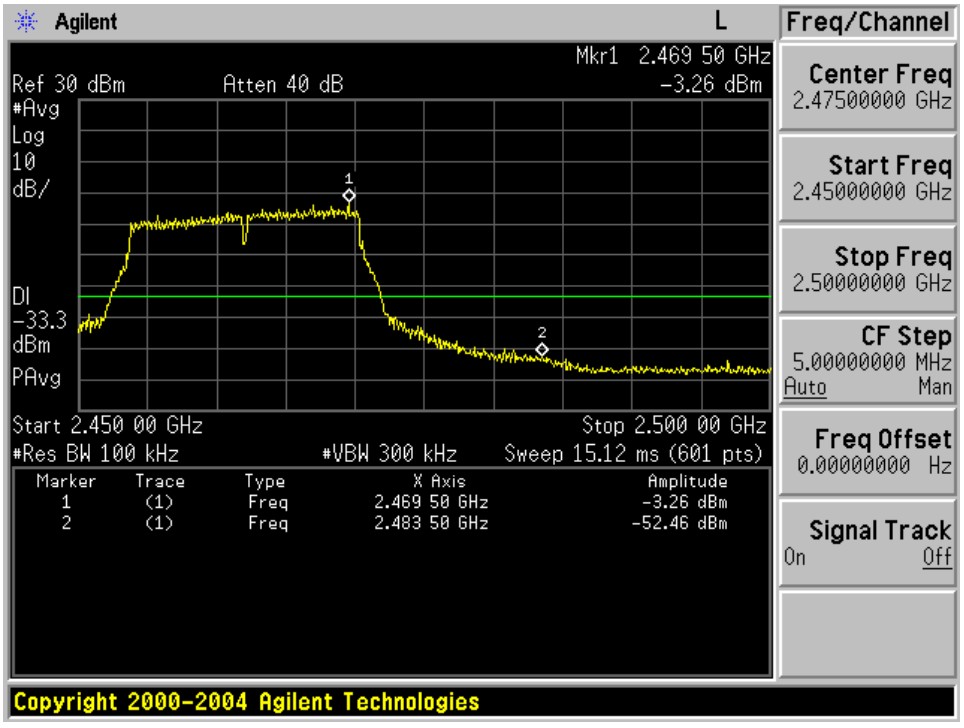
802.11b: Band Edge-High Channel



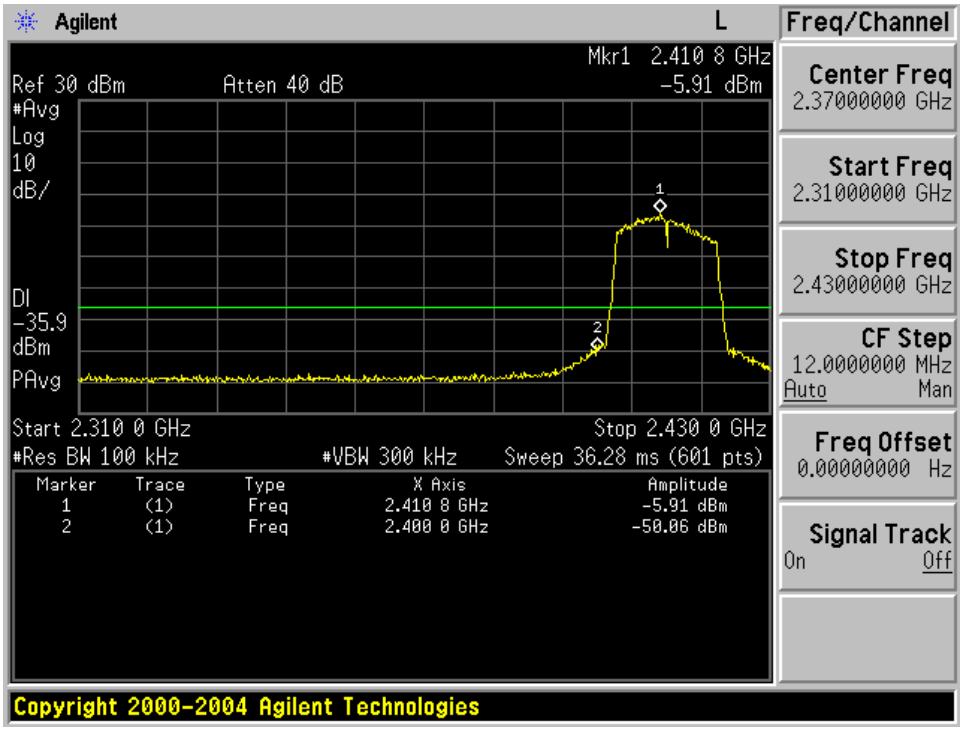
802.11g: Band Edge-Low Channel



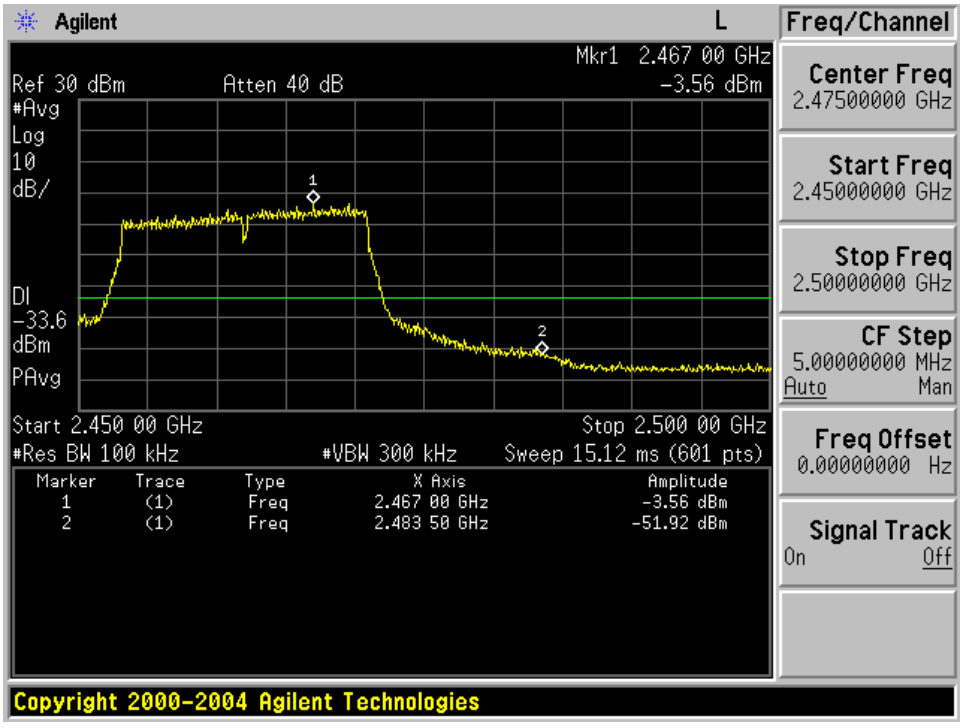
802.11g: Band Edge-High Channel



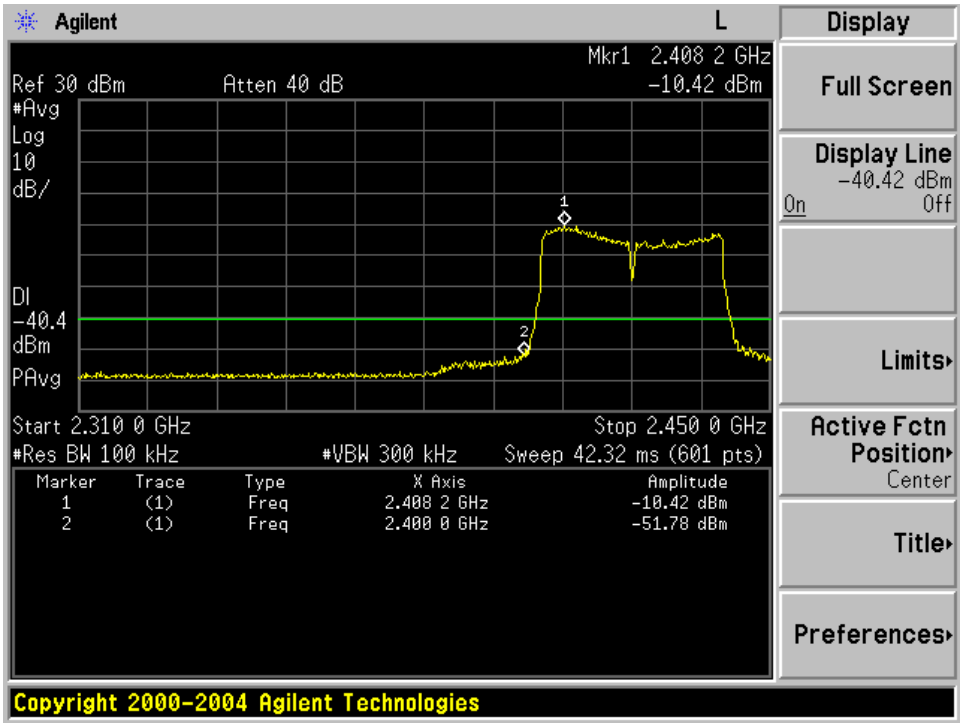
802.11n HT20: Band Edge-Low Channel



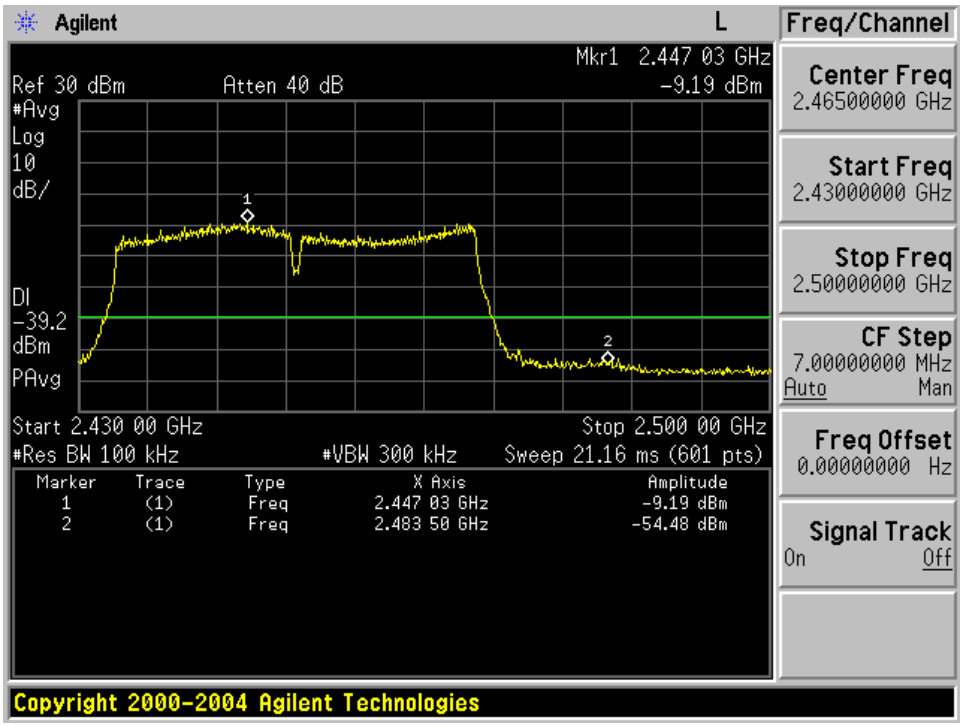
802.11n HT20: Band Edge-High Channel



802.11n HT40: Band Edge-Low Channel



802.11n HT40: Band Edge-High Channel



7.10 ANTENNA APPLICATION

7.10.1 Standard Applicable

According to § 15.203 & RSS-Gen, 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.

7.10.2 Antenna Connector Construction

The directional gains of antenna used for transmitting is 1.0dBi, which is a PIFI antenna and no consideration of replacement. Please see EUT photo for details.

7.10.3 Results: Compliance.

Measurement

The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module.

Conducted power refers ANSI C63.10:2013 Output power test procedure for DTS devices.

Radiated power refers to ANSI C63.10:2013 Radiated emissions tests.

Measurement parameters

Measurement parameter	
Detector:	Peak
Sweep Time:	Auto
Resolution bandwidth:	1MHz
Video bandwidth:	3MHz
Trace-Mode:	Max hold

Limits

FCC	IC
Antenna Gain	
6 dBi	

Note: The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module. For WLAN devices, the DSSS mode is used;

T_{nom}	V_{nom}	Lowest Channel 2412 MHz	Middle Channel 2437 MHz	Highest Channel 2462 MHz
Conducted power [dBm] Measured with DSSS modulation		13.98	13.84	14.40
Radiated power [dBm] Measured with DSSS modulation		14.88	14.67	15.27
Gain [dBi] Calculated		0.9	0.83	0.87
Measurement uncertainty			± 1.6 dB (cond.) / ± 3.8 dB (rad.)	

Result: -/-

T_{nom}	V_{nom}	Lowest Channel 2412 MHz	Middle Channel 2437 MHz	Highest Channel 2462 MHz
Conducted power [dBm] Measured with DSSS modulation		8.92	8.86	8.94
Radiated power [dBm] Measured with DSSS modulation		9.87	9.82	9.86
Gain [dBi] Calculated		0.95	0.96	0.92
Measurement uncertainty			± 1.6 dB (cond.) / ± 3.8 dB (rad.)	

Result: -/-

END OF REPORT