



FCC Part 15C Test Report

FCC ID: GAO-STAR5

Product Name:	Mobile Phone
Trademark:	SMOOTH
Model Name :	SMOOTH STAR 5
Prepared For :	Collage Investments LLC
Address :	11437 NW 34 STREET, Doral, FL 33178, United States
Prepared By :	Shenzhen BCTC Technology Co., Ltd.
Address :	No.101,Yousong Road,Longhua New District, Shenzhen,China
Test Date:	Apr. 4 - Apr. 14, 2016
Date of Report :	Apr. 15, 2016
Report No.:	BCTC-160303341-1E



TEST RESULT CERTIFICATION

Applicant's name : **Collage Investments LLC**

Address : 11437 NW 34 STREET, Doral, FL 33178, United States

Manufacture's Name : **Collage Investments LLC**

Address : 11437 NW 34 STREET, Doral, FL 33178, United States

Product description

Product name : Mobile Phone

Trademark : SMOOTH

Model and/or type reference : SMOOTH STAR 5

Standards : FCC Part15.247

Test procedure ANSI C63.10-2013

This device described above has been tested by BCTC, 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.

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247 (a)(2)	6dB Bandwidth	PASS	
15.247 (b)	Peak 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	

NOTE:

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



1.1 TEST FACILITY

Shenzhen BCTC Technology Co., Ltd.

Add. : No.101,Yousong Road,Longhua New District, Shenzhen,China

FCC Registered No.: 187086

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, 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	$\pm 1.38\text{dB}$
2	RF power,conducted	$\pm 0.16\text{dB}$
3	Spurious emissions,conducted	$\pm 0.21\text{dB}$
4	All emissions,radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name:	Mobile Phone
Model No.:	SMOOTH STAR 5
Trademark:	SMOOTH
Operation Frequency:	GSM 850MHz: Tx: 824.20 - 848.80MHz (at intervals of 200kHz); Rx: 869.20 - 893.80MHz (at intervals of 200kHz) GSM 1900MHz: Tx: 1850.20 - 1909.80MHz (at intervals of 200kHz); Rx: 1930.20 - 1989.80MHz (at intervals of 200kHz) WCDMA 850MHz Tx: 826.40 - 846.60MHz (at intervals of 200kHz); Rx: 871.40 - 891.60MHz (at intervals of 200kHz) BT:2402~2480MHz WIFI:2412~2462MHz
Modulation technology:	GSM/GPRS Mode with GMSK EGPRS Mode with 8PSK WCDMA Mode with QPSK BT: GFSK, PI/4 DPSK, 8DPSK WIFI: OFDM,DSSS
Antenna Type:	Integral Antenna
Antenna gain:	2.0dBi(GSM850/1900) 1.5dBi(BT&WIFI)
Power supply:	DC 5V from adapter Rechargeable lithium-ion battery 3.7V
GPRS Class:	12
EGPRS Class:	12
Adapter	Model: STAR 5 I/P:100-240V 50/60Hz 0.15A O/P: DC 5V/0.5A
Connecting I/O Port(s)	Please refer to the User's Manual
Hardware version	--
Software version	--
Serial number	--
Data rate:	802.11b: 1Mbps, 2Mbps, 5.5Mbps, 11Mbps 802.11g: 6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps,54Mbps 802.11n: Up to 150Mbps

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



2.

Channel List for 802.11b/g/n(20)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		
Channel List for 802.11n(40)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
03	2422	05	2432	07	2442	09	2452
04	2427	06	2437	08	2447		

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	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11n20 CH1/ CH6/ CH11
Mode 4	802.11n40 CH3/ CH6/ CH9
Mode 5	Link Mode
For Conducted Emission	
Final Test Mode	Description
Mode 5	Link Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11n20 CH1/ CH6/ CH11
Mode 4	802.11n40 CH3/ CH6/ CH9

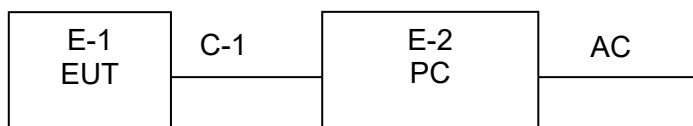
Note:

- (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
- (3) According to ANSI C63.10 standards, the test results are both the "worst case" and "worst setup" 11MHz for 802.11b,6MHz for 802.11g,13Mbps for 802.11n(H20), 54Mbps for 802.11n(H40).



2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Emission Test



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	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Mobile Phone	N/A	SMOOTH STAR 5	N/A	EUT
E-3	PC	ASUS	STAR 5	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C1	NO Shielded	NO	0.8M	Unshielded USB cable

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
1	Spectrum Analyzer	Agilent	E4407B	MY45109572	2015.08.25	2016.08.24
2	Test Receiver	R&S	ESPI	101396	2015.08.25	2016.08.24
3	Bilog Antenna	SCHWARZBECK	VULB9160	VULB9160-3369	2015.08.25	2016.08.24
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2015.07.06	2016.07.05
5	Spectrum Analyzer	Agilent	N9020A	MY5051041	2015.07.06	2016.07.05
6	Horn Antenna	SCHWARZBECK	9120D	9120D-1275	2015.08.25	2016.08.24
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2015.07.06	2016.07.05
8	Amplifier	SCHWARZBECK	BBV9718	9718-270	2015.08.25	2016.08.24
9	Amplifier	SCHWARZBECK	BBV9743	9743-119	2015.08.25	2016.08.24
10	Loop Antenna	ARA	PLSMOOTH STAR 530/B	1029	2015.07.06	2016.07.05
11	Power Meter	R&S	NRVS	100696	2015.07.06	2016.07.05
12	Power Sensor	R&S	URV5-Z4	0395.1619.05	2015.07.06	2016.07.05
13	RF cables	R&S	N/A	N/A	2015.07.06	2016.07.05

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Test Receiver	R&S	ESCI	1166.5950K03-101165-ha	2015.06.06	2016.06.05
2	LISN	R&S	NSLK8126	8126466	2015.08.24	2016.08.23
3	LISN	R&S	NSLK8126	8126487	2015.08.24	2016.08.23
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2015.06.07	2016.06.06
5	RF cables	R&S	R204	R20X	2015.07.06	2016.07.05



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

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

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

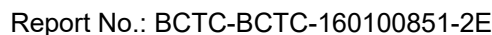
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

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



- 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.

No deviation

The diagram illustrates a shielded test cell setup. A **Vertical Reference Ground Plane** is shown on the left. A **Horizontal Reference Ground Plane** is shown at the bottom. A **Test Receiver** is positioned on the right. A **EUT** (Equipment Under Test) is placed on a stand, with a **LISN** (Line Impedance Stabilization Network) connected to its power input. The distance between the Vertical Reference Ground Plane and the EUT is **40 cm**. The height of the EUT stand above the Horizontal Reference Ground Plane is **80 cm**. The LISN is connected to the power line, which is grounded at the bottom right.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

We pretest AC 120V and AC 240V, the worst voltage was AC 120V and the data recording in the report.



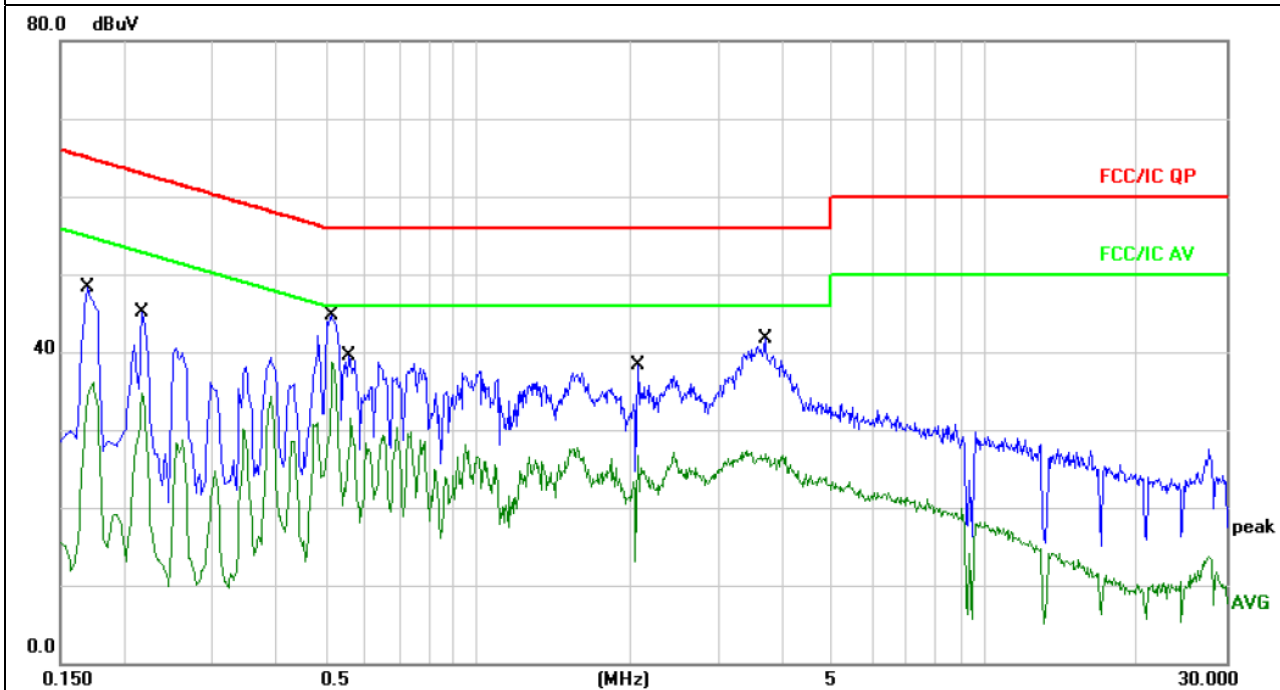
3.1.6 TEST RESULTS

EUT :	Mobile Phone	Model Name. :	SMOOTH STAR 5
Temperature :	26℃	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V from adapter	Test Mode :	Mode 5

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1700	38.21	10.06	48.27	64.96	-16.69	QP	
2	0.1700	25.95	10.06	36.01	54.96	-18.95	AVG	
3	0.2180	35.05	10.07	45.12	62.89	-17.77	QP	
4	0.2180	24.69	10.07	34.76	52.89	-18.13	AVG	
5	0.5140	34.65	10.12	44.77	56.00	-11.23	QP	
6 *	0.5140	28.51	10.12	38.63	46.00	-7.37	AVG	
7	0.5580	29.38	10.12	39.50	56.00	-16.50	QP	
8	0.5580	19.87	10.12	29.99	46.00	-16.01	AVG	
9	2.0700	28.11	10.18	38.29	56.00	-17.71	QP	
10	2.0700	16.54	10.18	26.72	46.00	-19.28	AVG	
11	3.6980	31.44	10.17	41.61	56.00	-14.39	QP	
12	3.6980	16.78	10.17	26.95	46.00	-19.05	AVG	

Remark:

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



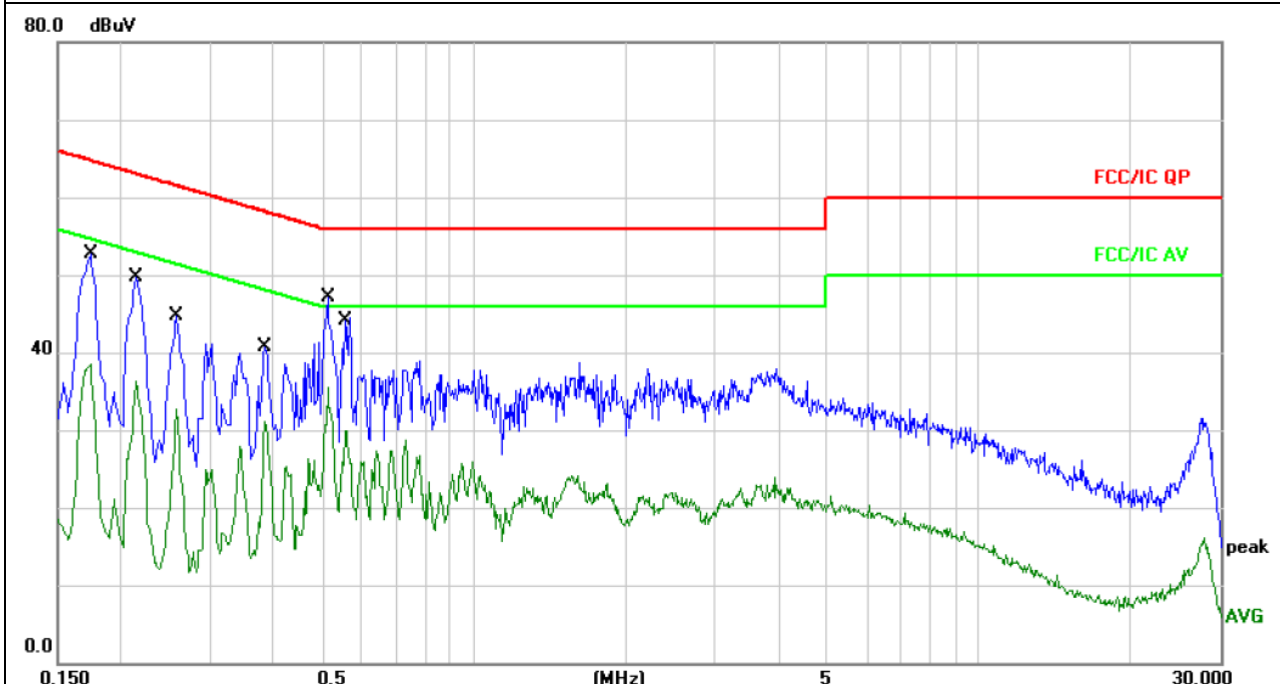


EUT :	Mobile Phone	Model Name. :	SMOOTH STAR 5
Temperature :	26°C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V from adapter	Test Mode :	Mode 5

No. Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Comment
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.1740	42.58	10.06	52.64	64.76	-12.12	QP	
2	0.1740	28.46	10.06	38.52	54.76	-16.24	AVG	
3	0.2140	39.73	10.07	49.80	63.04	-13.24	QP	
4	0.2140	26.29	10.07	36.36	53.04	-16.68	AVG	
5	0.2580	34.61	10.08	44.69	61.49	-16.80	QP	
6	0.2580	22.69	10.08	32.77	51.49	-18.72	AVG	
7	0.3860	30.62	10.10	40.72	58.15	-17.43	QP	
8	0.3860	21.07	10.10	31.17	48.15	-16.98	AVG	
9 *	0.5140	36.95	10.12	47.07	56.00	-8.93	QP	
10	0.5140	25.47	10.12	35.59	46.00	-10.41	AVG	
11	0.5580	34.43	10.12	44.55	56.00	-11.45	QP	
12	0.5580	19.82	10.12	29.94	46.00	-16.06	AVG	

Remark:

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





3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

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.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

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

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	25GHz
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



3.2.2 TEST PROCEDURE

- 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 meters above the ground at a 3 meter open area test site. 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; 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:

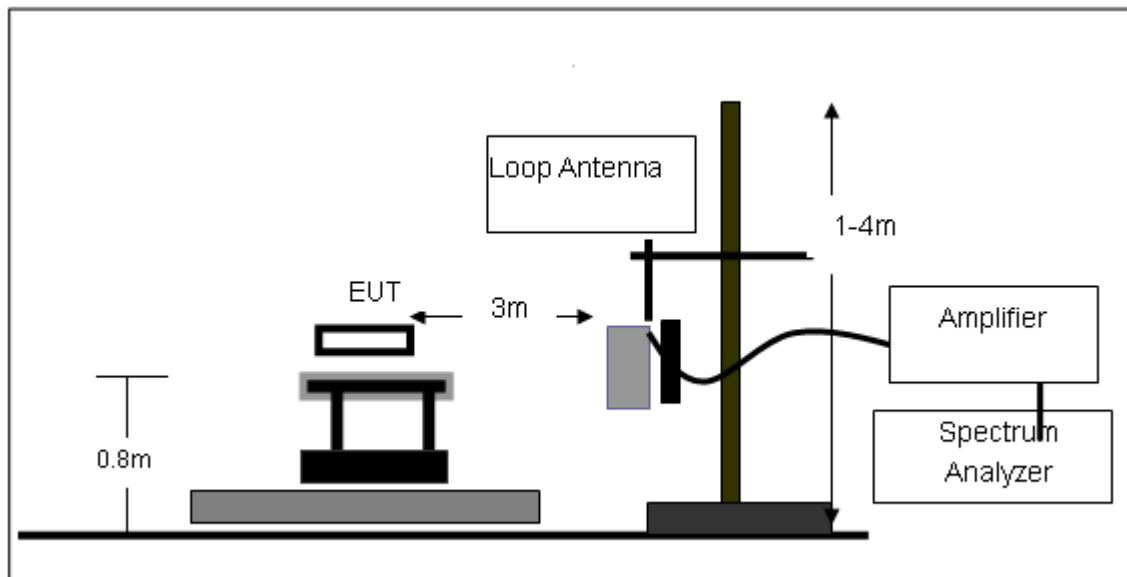
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported We pretest AC 120V and AC 240V, the worst voltage was AC 120V and the data recording in the report.

3.2.3 DEVIATION FROM TEST STANDARD

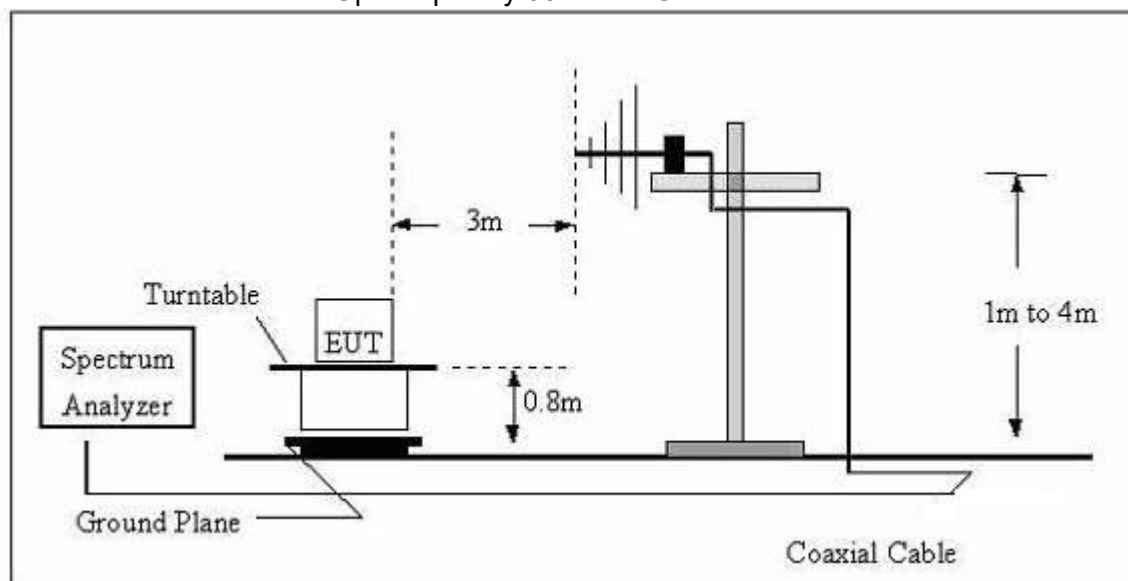
No deviation

3.2.4 TEST SETUP

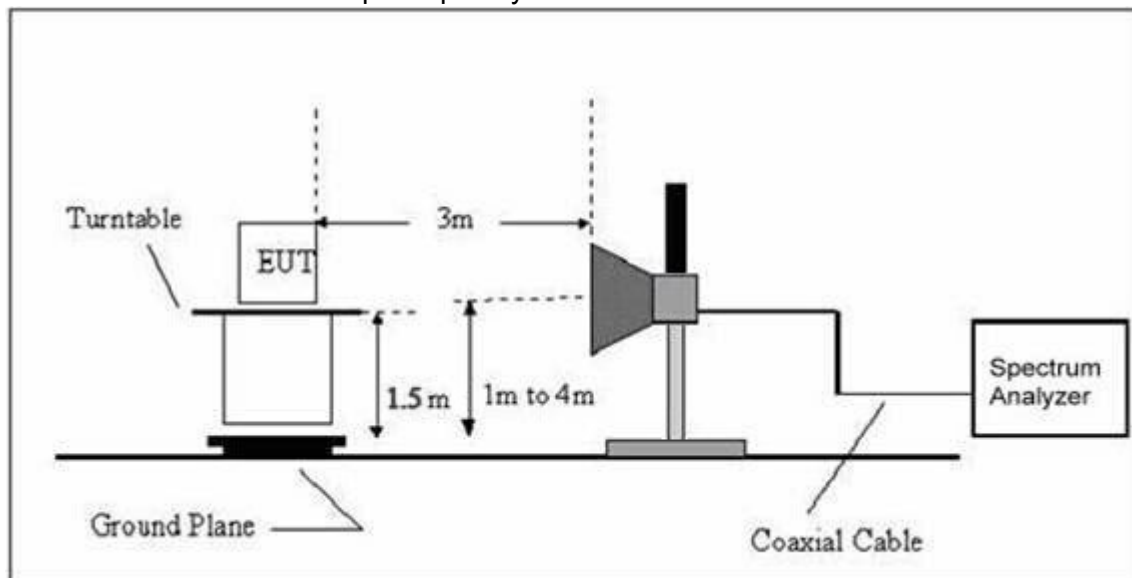
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 EUT OPERATING 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.

**3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)**

EUT:	Mobile Phone	Model Name. :	SMOOTH STAR 5
Temperature:	20℃	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	Mode 5	Polarization :	--

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

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 = $40 \log (\text{specific distance/test distance})$ (dB);

Limit line = specific limits(dBuV) + distance extrapolation factor.

**3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)**

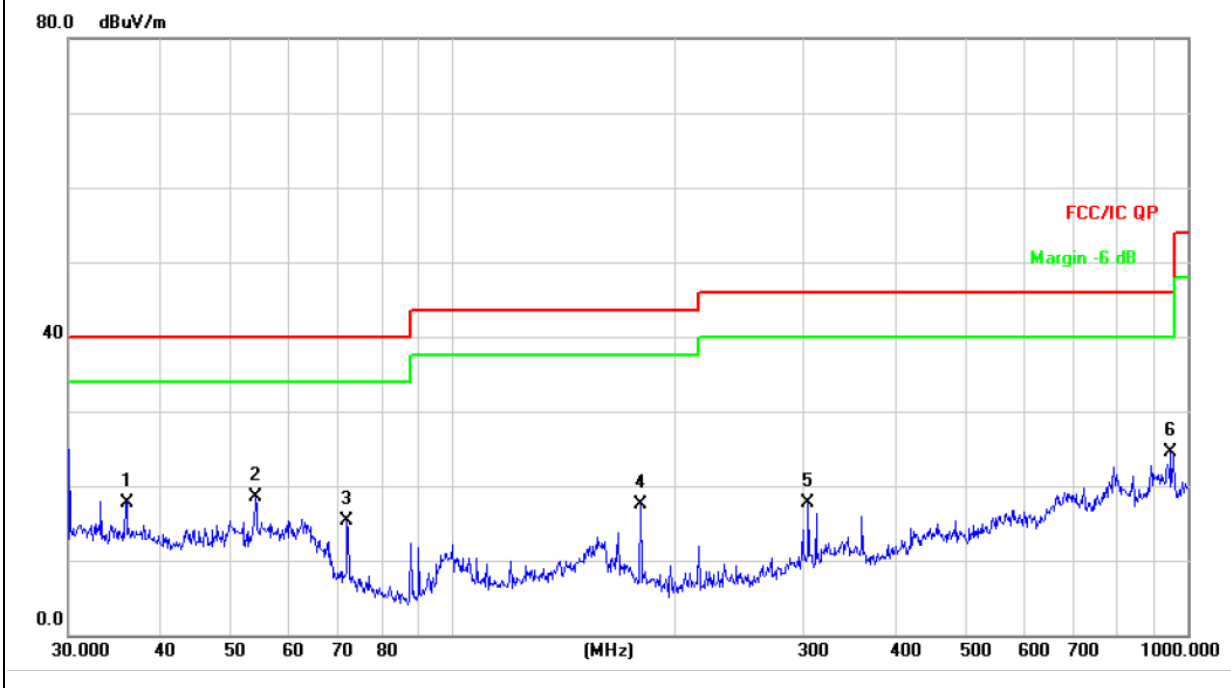
EUT :	Mobile Phone	Model Name :	SMOOTH STAR 5
Temperature :	26℃	Relative Humidity :	54%
Pressure :	1010 hPa	Polarization :	Horizontal
Test Voltage :	DC 3.7V		
Test Mode :	Mode 5		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		36.0007	26.38	-8.59	17.79	40.00	-22.21	QP		
2	*	53.8818	29.45	-10.93	18.52	40.00	-21.48	QP		
3		71.8320	30.44	-15.19	15.25	40.00	-24.75	QP		
4		180.0165	31.91	-14.34	17.57	43.50	-25.93	QP		
5		304.6100	30.21	-12.47	17.74	46.00	-28.26	QP		
6		948.7610	25.00	-0.48	24.52	46.00	-21.48	QP		

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

All interfaces was connected, and BT TX mode was link.





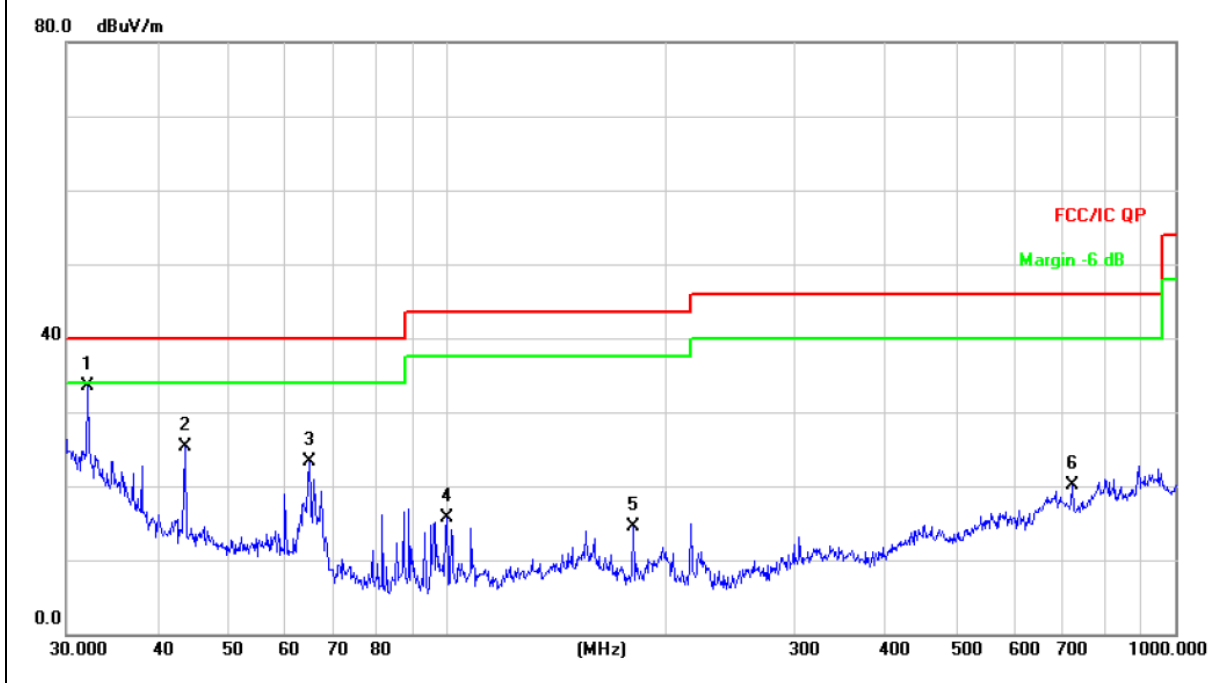
EUT :	Mobile Phone	Model Name :	SMOOTH STAR 5
Temperature :	26℃	Relative Humidity :	54%
Pressure :	1010 hPa	Polarization :	Vertical
Test Voltage :	DC 3.7V		
Test Mode :	Mode 5		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	32.0667	41.78	-8.31	33.47	40.00	-6.53	QP		
2		43.6584	34.55	-9.30	25.25	40.00	-14.75	QP		
3		64.6594	35.66	-12.45	23.21	40.00	-16.79	QP		
4		99.8777	32.16	-16.49	15.67	43.50	-27.83	QP		
5		180.0165	28.84	-14.34	14.50	43.50	-29.00	QP		
6		721.7259	23.99	-3.93	20.06	46.00	-25.94	QP		

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

All interfaces was connected, and BT TX mode was link.



**3.2.8 TEST RESULTS (1GHZ~25GHZ)****802.11b**

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2412							
V	4825.166	65.84	-3.64	62.20	74	-11.80	Pk
V	4825.166	47.34	-3.64	43.70	54	-30.30	AV
V	11243.000	51.80	-5.87	45.93	74	-28.07	Pk
V	17635.000	50.70	-6.54	44.16	74	-29.84	Pk
H	4825.215	65.35	-3.64	61.71	74	-12.29	Pk
H	4825.215	46.04	-3.64	42.40	54	-31.60	AV
H	11241.000	51.65	-5.87	45.78	74	-28.22	Pk
H	17652.000	50.54	-6.37	44.17	74	-29.83	Pk

802.11b

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2437							
V	4876.053	63.60	-3.63	59.97	74	-14.03	Pk
V	4876.053	45.33	-3.63	41.70	54	-12.30	AV
V	11243.000	51.54	-5.87	45.67	74	-28.33	Pk
V	17635.000	50.42	-6.54	43.88	74	-10.12	Pk
H	4876.211	64.56	-3.64	60.92	74	-13.08	Pk
H	4876.211	45.00	-3.64	41.36	54	-32.64	AV
H	11241.000	51.57	-5.87	45.70	74	-28.30	Pk
H	17652.000	50.43	-6.37	44.06	74	-29.94	Pk

802.11b

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2462							
V	4913.115	66.25	-3.64	62.61	74	-11.39	Pk
V	4913.115	47.02	-3.64	43.38	74	-10.62	AV
V	11243.000	51.53	-5.87	45.66	74	-28.34	Pk
V	17635.000	50.45	-6.54	43.91	74	-10.09	Pk
H	4912.732	65.03	-3.66	61.37	54	-12.63	Pk
H	4912.732	45.84	-3.66	42.18	54	-31.82	AV
H	11241.000	51.55	-5.87	45.68	74	-28.32	Pk
H	17652.000	50.30	-6.37	43.93	74	-30.07	Pk
Remark:							
Absolute Level= ReadingLevel+ Factor, Margin= Limit- Absolute Level							

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



802.11g

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2412							
V	4821.224	68.85	-3.6	-8.75	74	-8.75	Pk
V	4821.224	46.91	-3.6	-10.69	54	-10.69	AV
V	11243.000	51.76	-5.87	-28.11	74	-28.11	Pk
V	17635.000	50.53	-6.54	-10.01	74	-10.01	Pk
H	4821.527	66.99	-3.6	-10.61	74	-10.61	Pk
H	4821.527	46.63	-3.6	-30.97	54	-30.97	AV
H	11241.000	51.59	-5.87	-28.28	74	-28.28	Pk
H	17652.000	50.45	-6.37	-29.92	74	-29.92	Pk

802.11g

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2437							
V	4874.354	66.35	-3.63	62.72	74	-11.28	Pk
V	4874.354	47.41	-3.63	43.78	54	-10.22	AV
V	11243.000	51.60	-5.87	45.73	74	-28.27	Pk
V	17635.000	50.54	-6.54	44.00	74	-10.00	Pk
H	4874.145	66.92	-3.64	63.28	74	-10.72	Pk
H	4874.145	46.51	-3.64	42.87	54	-31.13	AV
H	11241.000	51.91	-5.87	46.04	74	-27.96	Pk
H	17652.000	50.44	-6.37	44.07	74	-29.93	Pk

802.11g

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2462							
V	4914.103	66.03	-3.62	62.41	74	-11.59	Pk
V	4914.103	48.39	-3.62	44.77	74	-9.23	AV
V	11243.000	51.48	-5.87	45.61	74	-28.39	Pk
V	17635.000	50.63	-6.54	44.09	74	-9.91	Pk
H	4914.032	64.82	-3.62	61.20	74	-12.80	Pk
H	4914.032	47.56	-3.62	43.94	74	-30.06	AV
H	11241.000	51.49	-5.87	45.62	74	-28.38	Pk
H	17652.000	50.45	-6.37	44.08	74	-29.92	Pk

Remark:

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

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

**802.11n(20MHz)**

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2412							
V	4822.217	65.64	-3.58	62.06	74	-11.94	Pk
V	4822.217	47.16	-3.58	43.58	54	-10.42	AV
V	11243.000	51.38	-5.87	45.51	74	-28.49	Pk
V	17635.000	50.59	-6.54	44.05	74	-9.95	Pk
H	4822.322	65.81	-3.6	62.21	74	-11.79	Pk
H	4822.322	46.41	-3.6	42.81	54	-31.19	AV
H	11241.000	51.67	-5.87	45.80	74	-28.20	Pk
H	17652.000	50.78	-6.37	44.41	74	-29.59	Pk
Remark:							
Absolute Level= ReadingLevel+ Factor, Margin= Limit- Absolute Level							

802.11n(20MHz)

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2437							
V	4874.054	67.47	-3.63	63.84	74	-10.16	Pk
V	4874.054	46.85	-3.63	43.22	54	-10.78	AV
V	11243.000	51.63	-5.87	45.76	74	-28.24	Pk
V	17635.000	50.77	-6.54	44.23	74	-9.77	Pk
H	4874.312	66.02	-3.64	62.38	74	-11.62	Pk
H	4874.312	46.08	-3.64	42.44	54	-31.56	AV
H	11241.000	51.25	-5.87	45.38	74	-28.62	Pk
H	17652.000	50.59	-6.37	44.22	74	-29.78	Pk

802.11n(20MHz)

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2462							
V	4922.213	64.72	-3.64	61.08	74	-12.92	Pk
V	4922.213	43.98	-3.64	40.34	54	-13.66	AV
V	11243.000	51.67	-5.87	45.80	74	-28.20	Pk
V	17635.000	50.27	-6.54	43.73	74	-10.27	Pk
H	4923.144	59.75	-3.66	56.09	74	-17.91	Pk
H	4923.144	43.29	-3.66	39.63	54	-34.37	AV
H	11241.000	51.25	-5.87	45.38	74	-28.62	Pk
H	17652.000	50.59	-6.37	44.22	74	-29.78	Pk
Remark:							
Absolute Level= ReadingLevel+ Factor, Margin= Limit- Absolute Level							

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



802.11n(40MHz)

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2422							
V	4844.058	65.44	-3.58	61.86	74	-12.14	Pk
V	4844.058	47.01	-3.58	43.43	54	-10.57	AV
V	11243.000	51.45	-5.87	45.58	74	-28.42	Pk
V	17635.000	50.57	-6.54	44.03	74	-9.97	Pk
H	4844.174	65.60	-3.6	62.00	74	-12.00	Pk
H	4844.174	46.27	-3.6	42.67	54	-31.33	AV
H	11241.000	51.45	-5.87	45.58	74	-28.42	Pk
H	17652.000	50.77	-6.37	44.40	74	-29.60	Pk

802.11n(40MHz)

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2437							
V	4874.314	67.25	-3.63	63.62	74	-10.38	Pk
V	4874.314	46.70	-3.63	43.07	54	-10.93	AV
V	11243.000	51.38	-5.87	45.51	74	-28.49	Pk
V	17635.000	50.50	-6.54	43.96	74	-10.04	Pk
H	4874.674	65.81	-3.64	62.17	74	-11.83	Pk
H	4874.674	45.94	-3.64	42.30	54	-31.70	AV
H	11241.000	51.68	-5.87	45.81	74	-28.19	Pk
H	17652.000	50.45	-6.37	44.08	74	-29.92	Pk

802.11n(40MHz)

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2452							
V	4904.631	64.59	-3.64	60.95	74	-13.05	Pk
V	4904.631	43.90	-3.64	40.26	54	-13.74	AV
V	11243.000	51.60	-5.87	45.73	74	-28.27	Pk
V	17635.000	50.35	-6.54	43.81	74	-10.19	Pk
H	4904.517	59.64	-3.66	55.98	74	-18.02	Pk
H	4904.517	43.37	-3.66	39.71	54	-34.29	AV
H	11241.000	51.50	-5.87	45.63	74	-28.37	Pk
H	17652.000	50.29	-6.37	43.92	74	-30.08	Pk

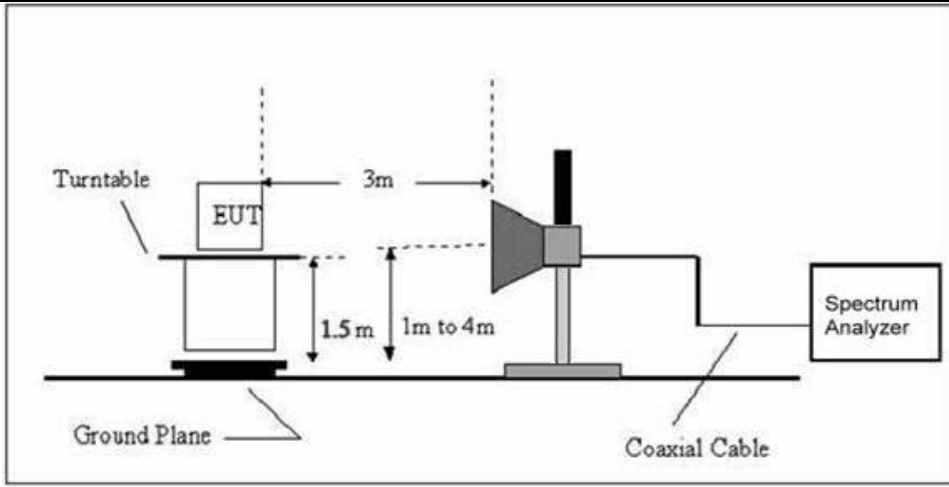
Remark:

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

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



3.3 RADIATED BAND EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.209 and 15.205			
Test Frequency Range:	All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed.			
Test site:	3m chamber			
Receiver setup:	Frequency	RBW	VBW	Value
	Above 1GHz	1MHz	3MHz	PEAK
		1MHz	10Hz	AVERAGE
Limit:	Frequency	Limit (dBuV/m @3m)		Value
	Above 1GHz	74.00		PEAK
		54.00		AVERAGE
Test setup:				
Test Procedure:	1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasispeak or average method as specified and then reported in a data sheet.			
Test Data:	Please see tabel as below.			



802.11b

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2412							
V	2390.00	50.34	-1.25	49.09	74	-24.91	Pk
V	2390.00	41.35	-1.25	40.10	54	-13.90	AV
H	2400.00	50.87	-1.27	49.60	74	-24.40	Pk
H	2400.00	41.38	-1.27	40.11	54	-13.89	AV

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2462							
V	2483.50	50.63	-1.53	49.10	74	-24.90	Pk
V	2483.50	41.24	-1.53	39.71	74	-14.29	AV
H	2500.00	50.69	-1.61	49.08	74	-24.92	Pk
H	2500.00	41.45	-1.61	39.84	74	-14.16	Pk

Remark:

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

802.11g

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2412							
V	2390.00	50.27	-1.25	49.02	74	-24.98	Pk
V	2390.00	40.68	-1.25	39.43	54	-14.57	AV
H	2400.00	50.33	-1.27	49.06	74	-24.94	Pk
H	2400.00	41.07	-1.27	39.80	54	-14.20	AV

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2462							
V	2483.50	50.74	-1.53	49.21	74	-24.79	Pk
V	2483.50	40.39	-1.53	38.86	74	-15.14	AV
H	2500.00	50.58	-1.61	48.97	74	-25.03	Pk
H	2500.00	40.67	-1.61	39.06	74	-14.94	Pk

Remark:

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

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

**802.11n(20MHz)**

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2412							
V	2390.00	50.78	-1.25	49.53	74	-24.47	Pk
V	2390.00	40.96	-1.25	39.71	54	-14.29	AV
H	2400.00	50.69	-1.27	49.42	74	-24.58	Pk
H	2400.00	41.06	-1.27	39.79	54	-14.21	AV

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2462							
V	2483.50	50.57	-1.53	49.04	74	-24.96	Pk
V	2483.50	40.88	-1.53	39.35	74	-14.65	AV
H	2500.00	50.39	-1.61	48.78	74	-25.22	Pk
H	2500.00	41.24	-1.61	39.63	74	-14.37	Pk

Remark:

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

802.11n(40MHz)

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2422							
V	2390.00	52.31	-1.25	51.06	74	-22.94	Pk
V	2390.00	42.87	-1.25	41.62	54	-12.38	AV
H	2400.00	52.39	-1.27	51.12	74	-22.88	Pk
H	2400.00	43.11	-1.27	41.84	54	-12.16	AV

Polar (H/V)	Frequency	Reading Level	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2452							
V	2483.50	52.42	-1.53	50.89	74	-23.11	Pk
V	2483.50	43.18	-1.53	41.65	74	-12.35	AV
H	2500.00	50.67	-1.61	49.06	74	-24.94	Pk
H	2500.00	40.18	-1.61	38.57	74	-15.43	Pk

Remark:

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

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

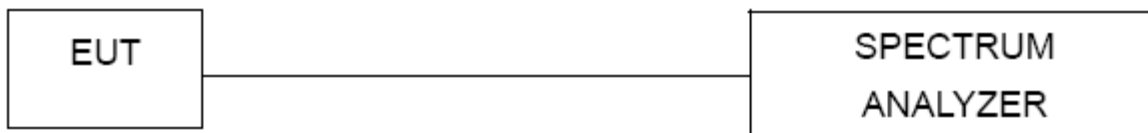
4.1.1 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: $3\text{ kHz} \leq \text{RBW} \leq 100\text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{RBW}$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

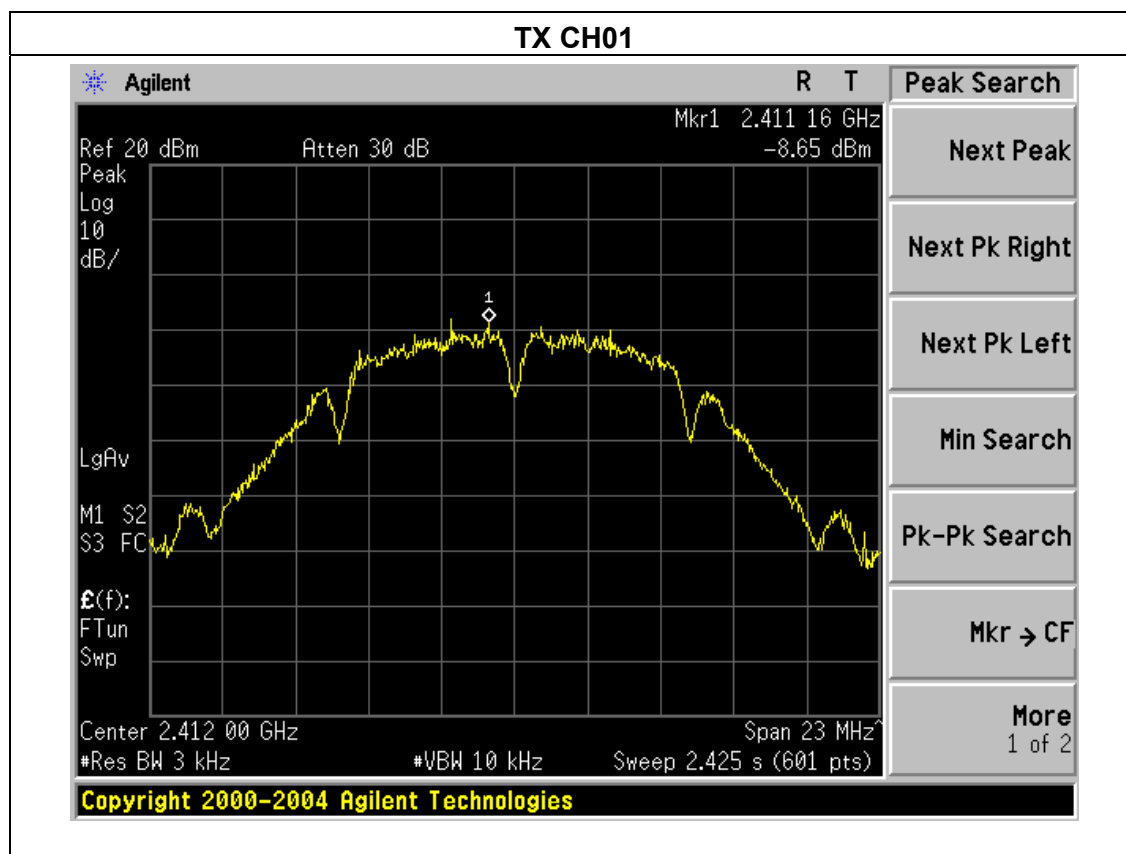
The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.



4.1.5 TEST RESULTS

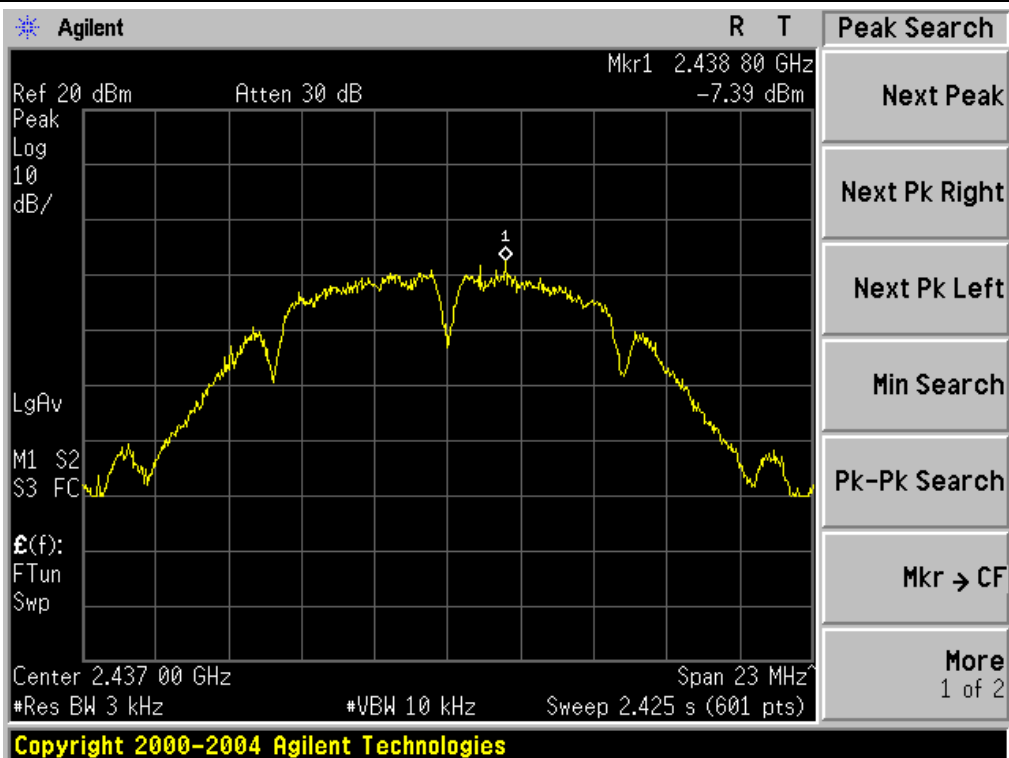
EUT :	Mobile Phone	Model Name :	SMOOTH STAR 5
Temperature :	25℃	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX b Mode /CH01, CH06, CH11		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-8.65	8	PASS
2437 MHz	-7.39	8	PASS
2462 MHz	-10.34	8	PASS

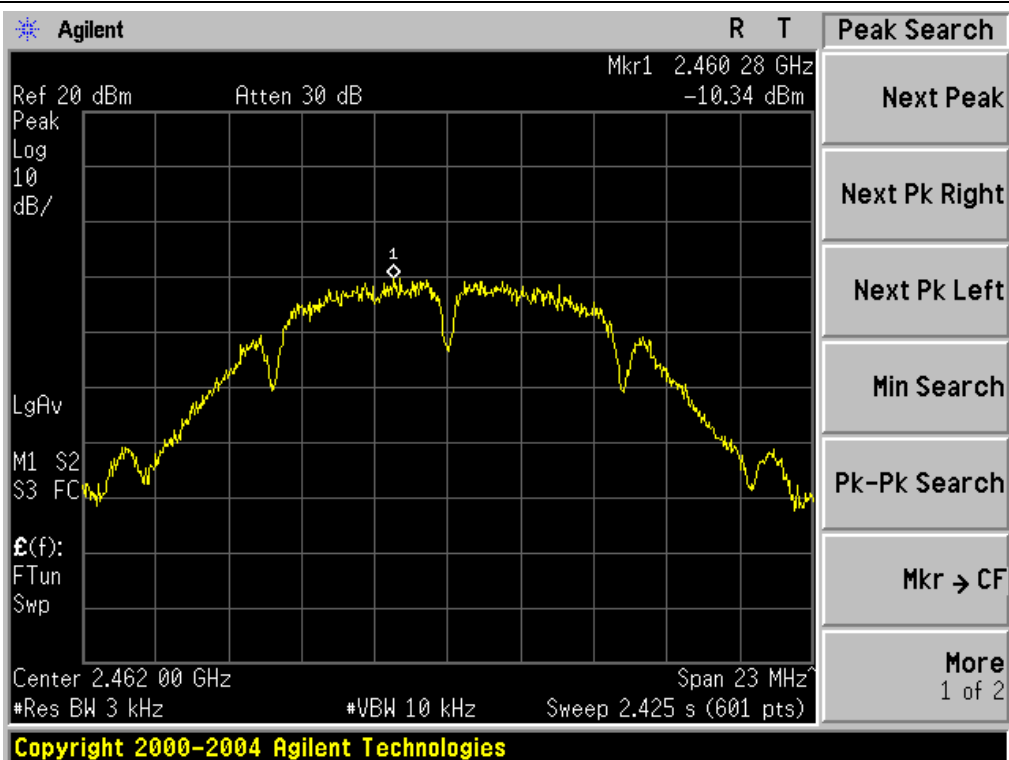




TX CH06



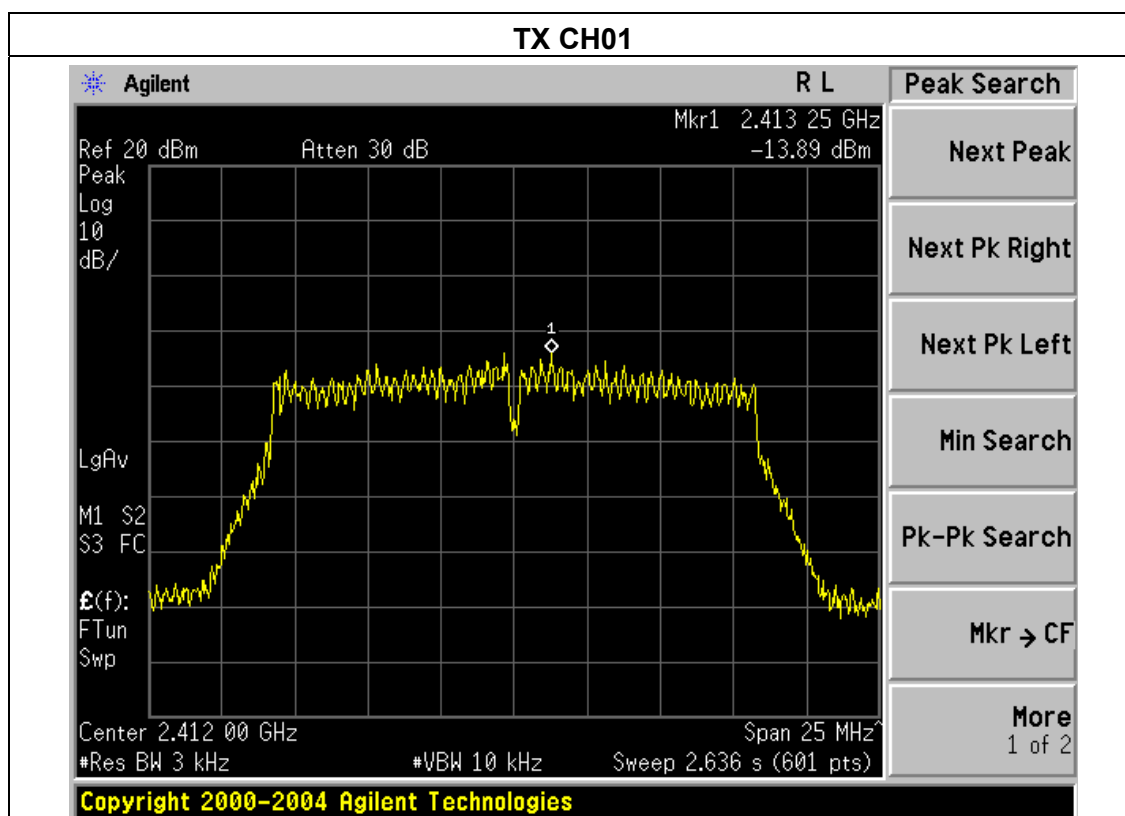
TX CH11

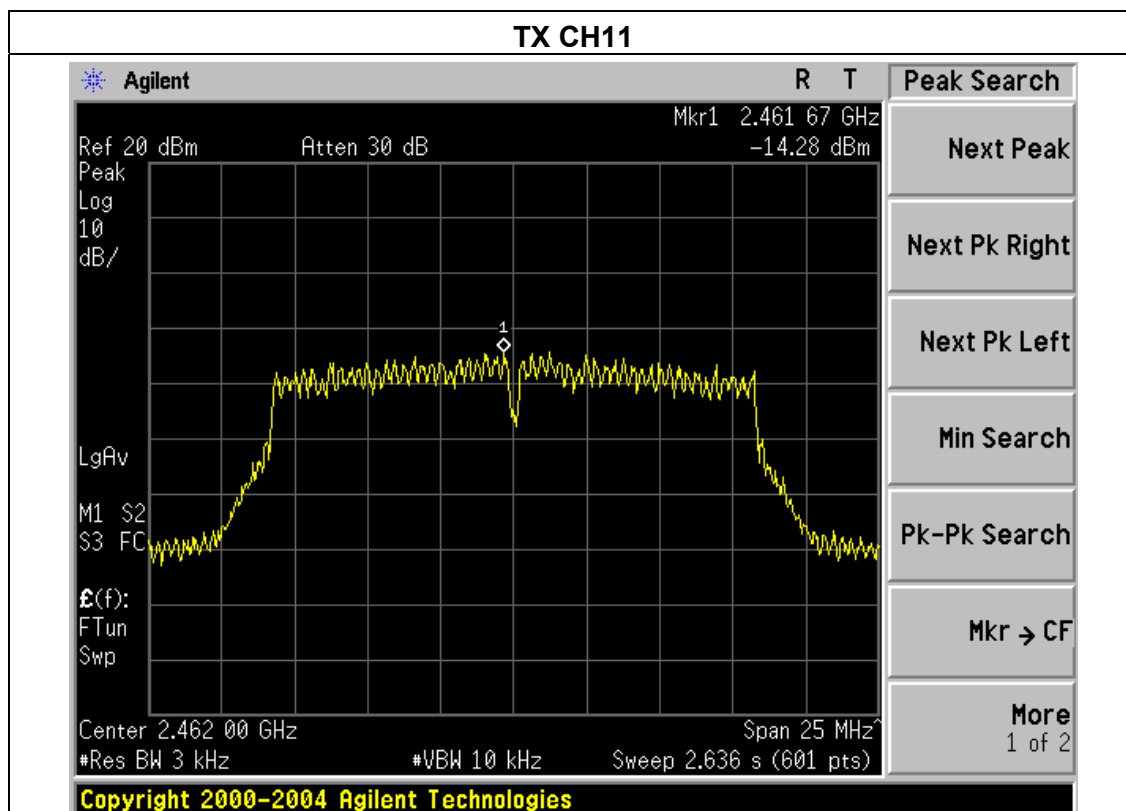
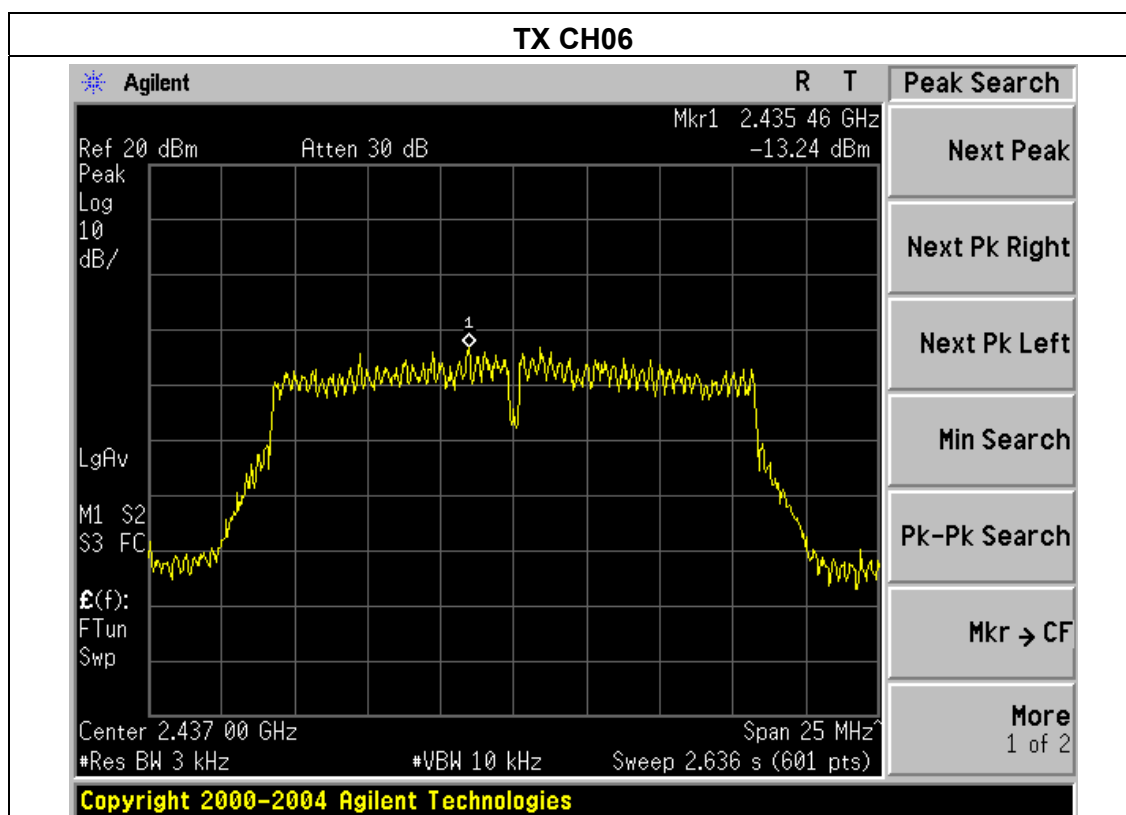




EUT :	Mobile Phone	Model Name :	SMOOTH STAR 5
Temperature :	25°C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX g Mode /CH01, CH06, CH11		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-13.89	8	PASS
2437 MHz	-13.24	8	PASS
2462 MHz	-14.26	8	PASS

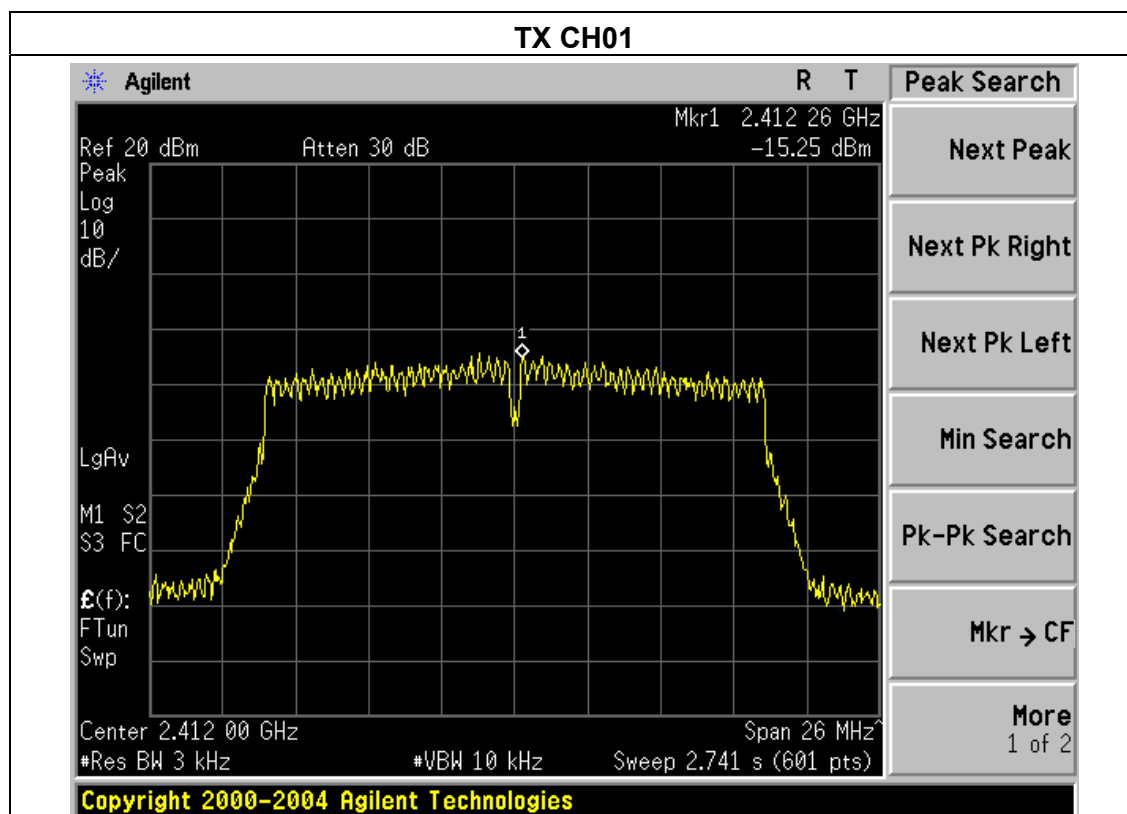






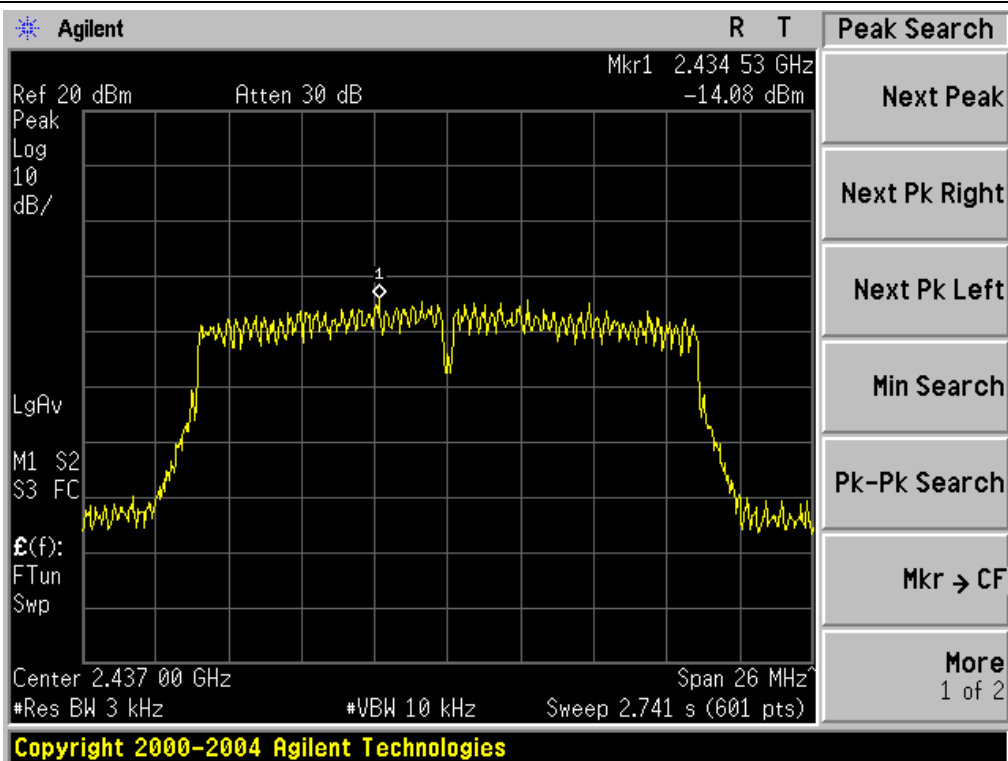
EUT :	Mobile Phone	Model Name :	SMOOTH STAR 5
Temperature :	25°C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX n Mode(20M) /CH01, CH06, CH11		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-15.25	8	PASS
2437 MHz	-14.08	8	PASS
2462 MHz	-14.92	8	PASS

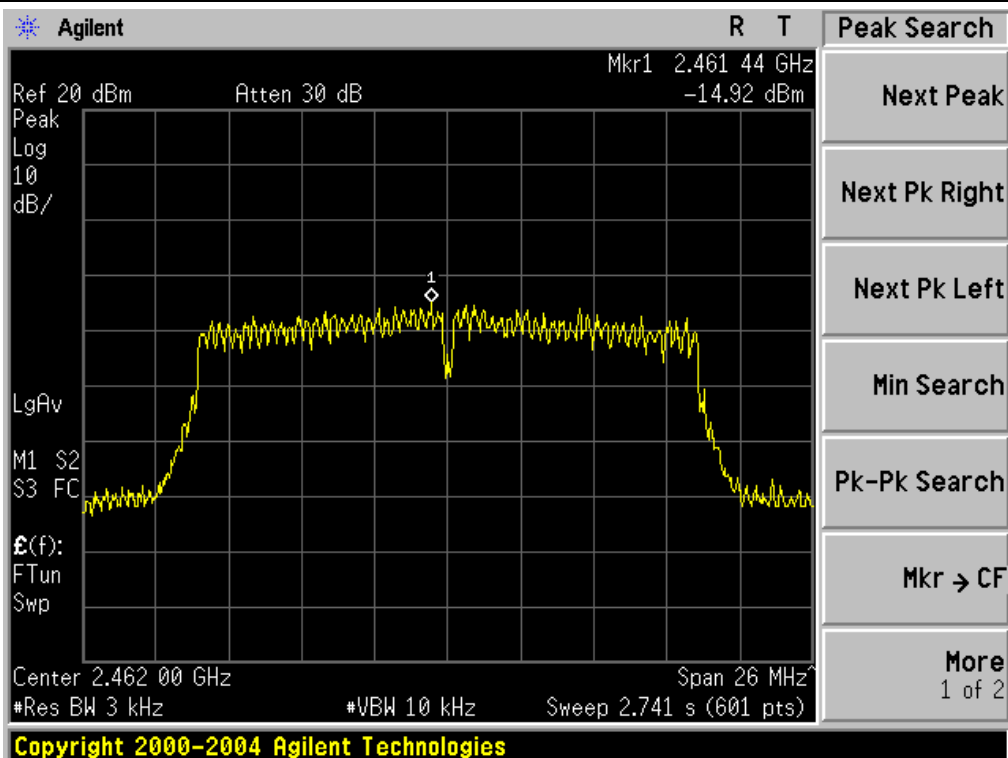




TX CH06



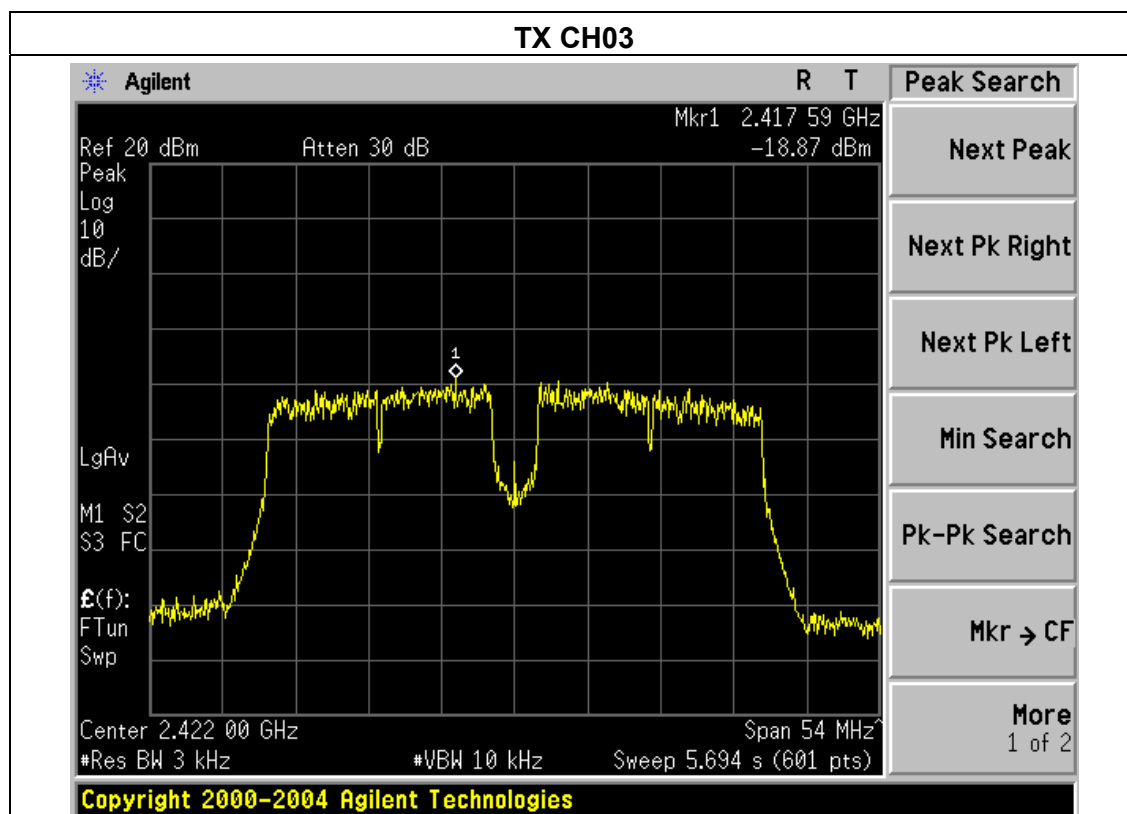
TX CH11





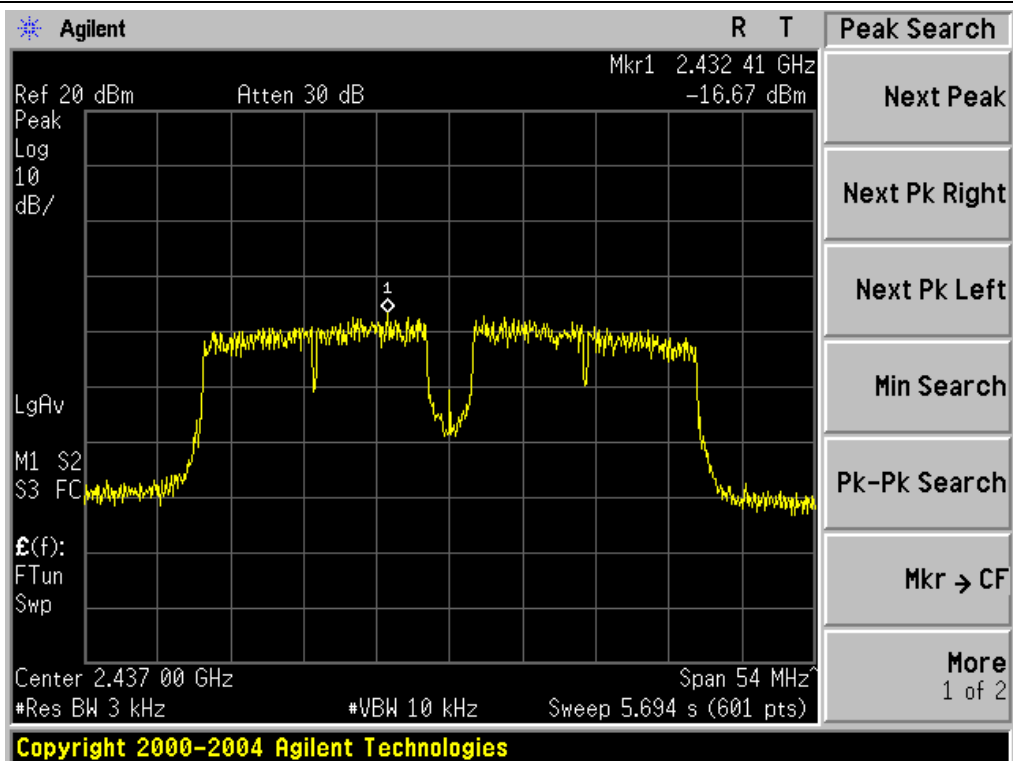
EUT :	Mobile Phone	Model Name :	SMOOTH STAR 5
Temperature :	25°C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX n Mode(40M) /CH03, CH06, CH9		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2422 MHz	-18.87	8	PASS
2437 MHz	-16.67	8	PASS
2452 MHz	-20.57	8	PASS

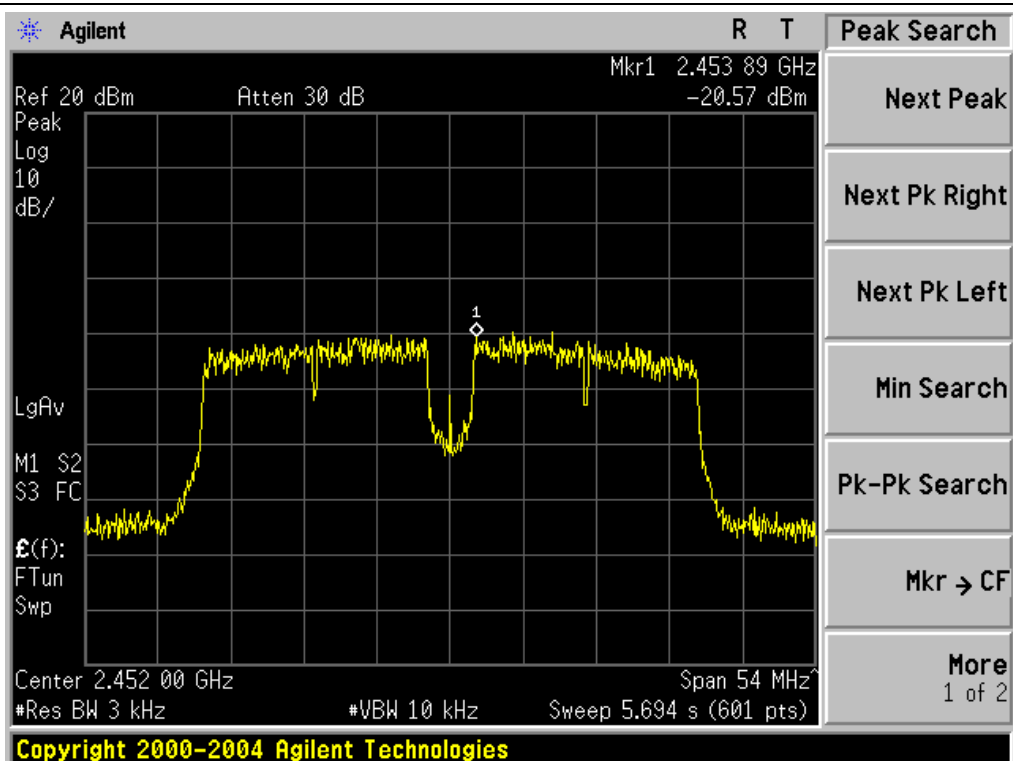




TX CH06



TX CH09





5. BANDWIDTH TEST

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

5.1.1 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times \text{RBW}$.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

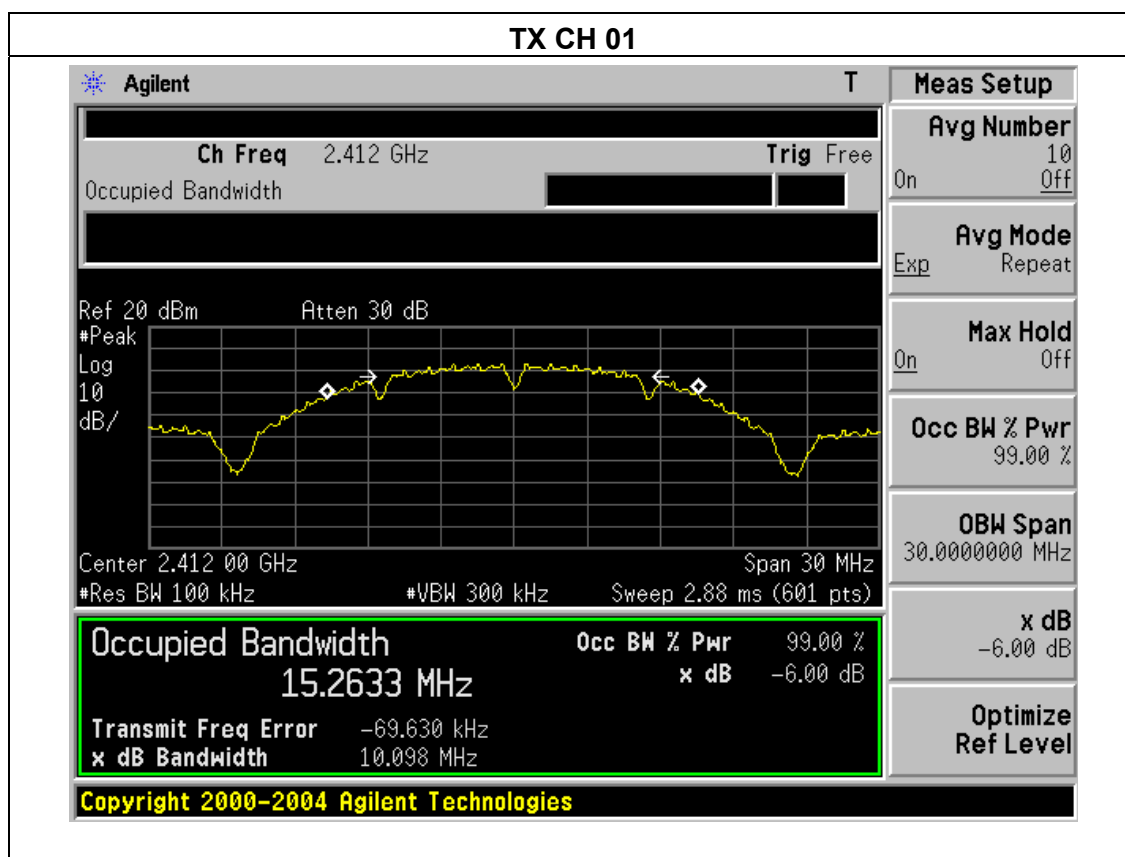
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



5.1.5 TEST RESULTS

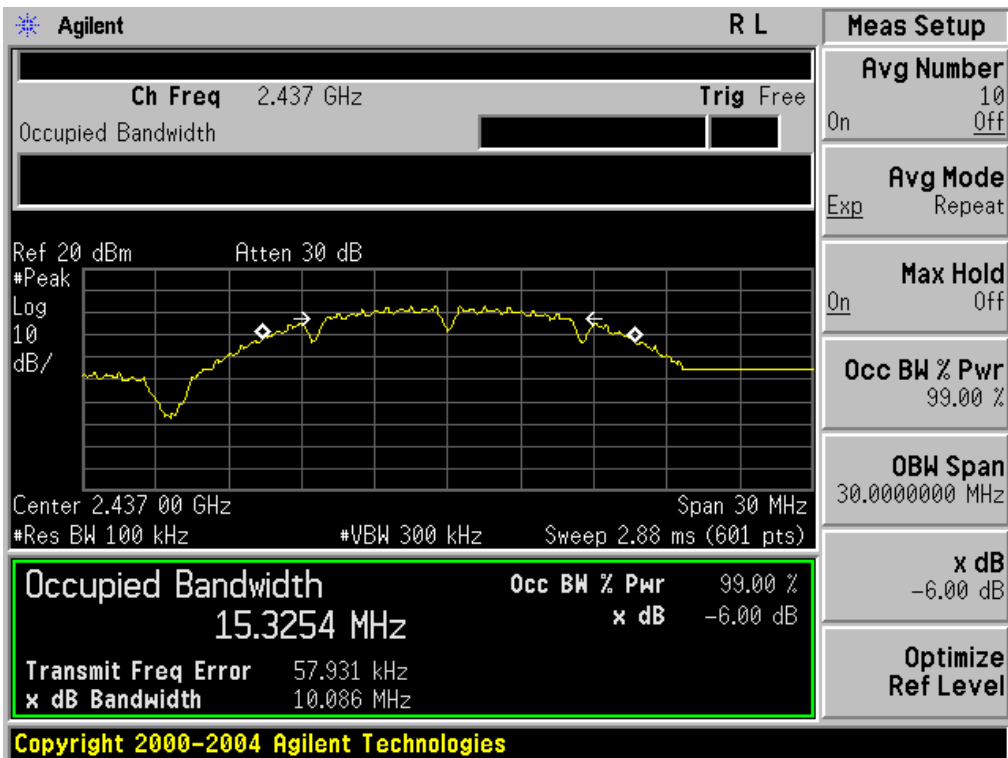
EUT :	Mobile Phone	Model Name :	SMOOTH STAR 5
Temperature :	25°C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX b Mode /CH01, CH06, CH11		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.098	500	Pass
Middle	2437	10.086	500	Pass
High	2462	10.090	500	Pass

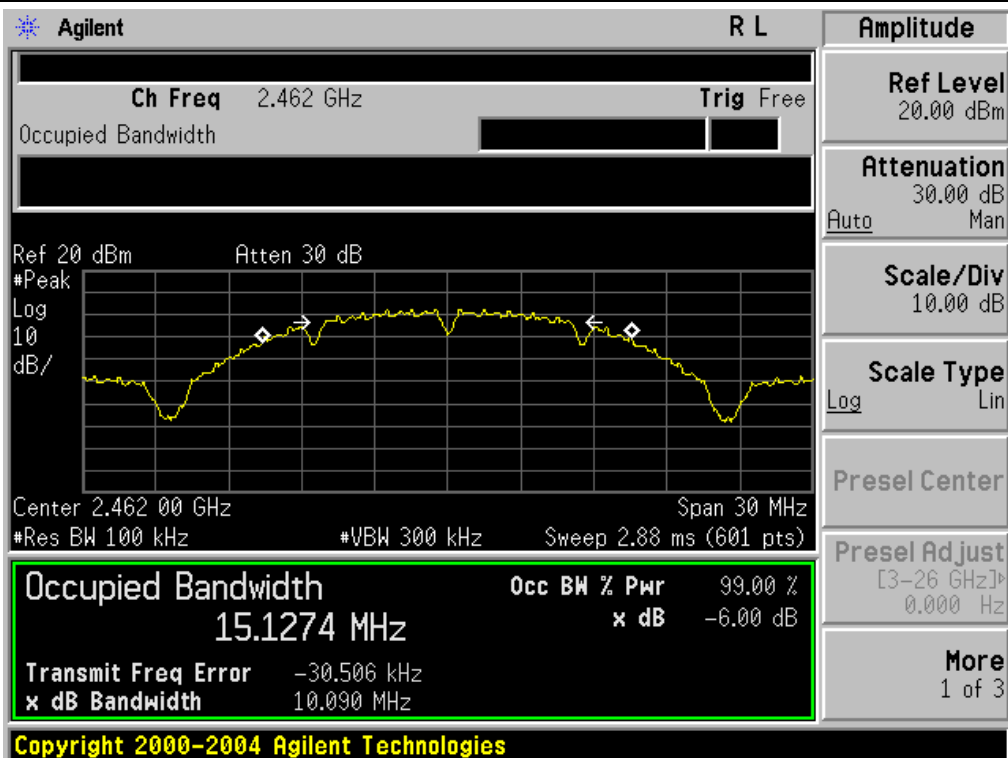




TX CH 06



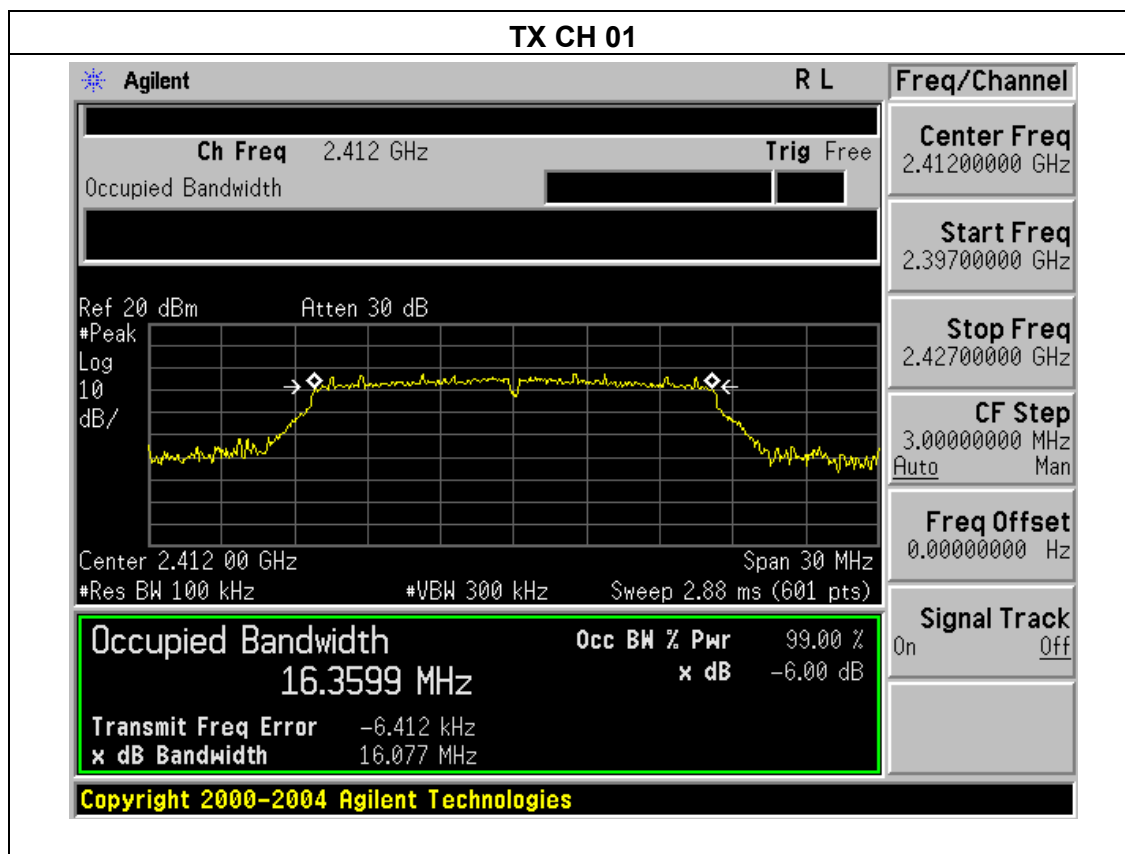
TX CH 11





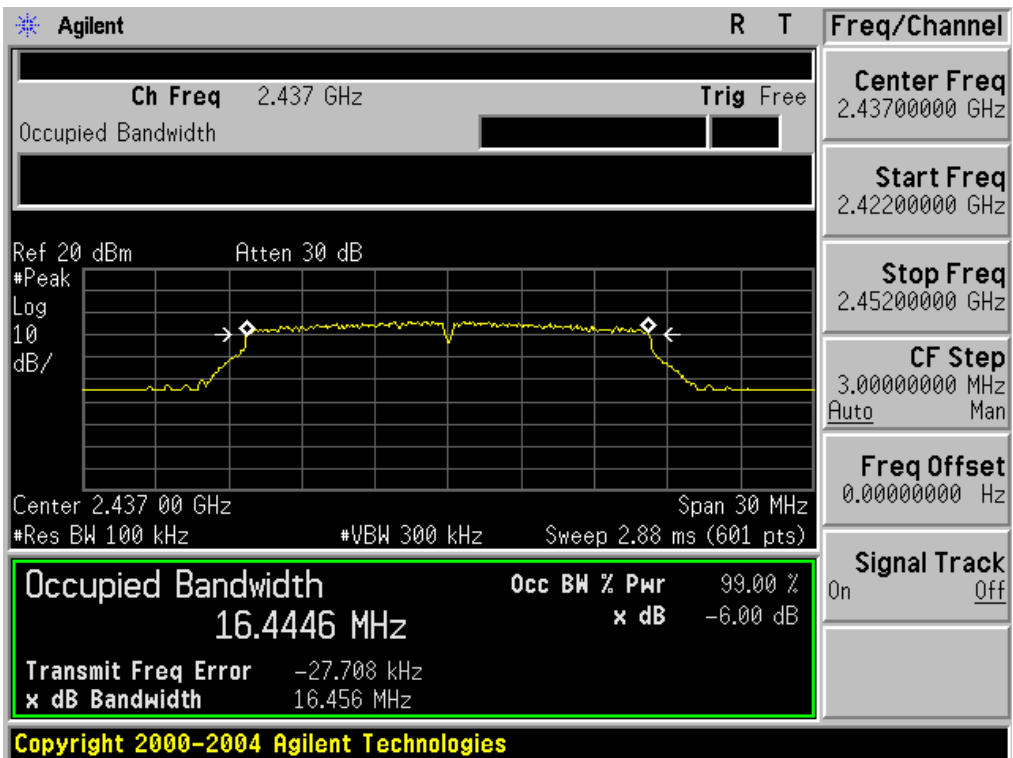
EUT :	Mobile Phone	Model Name :	SMOOTH STAR 5
Temperature :	25°C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX g Mode /CH01, CH06, CH11		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.077	500	Pass
Middle	2437	16.456	500	Pass
High	2462	16.432	500	Pass

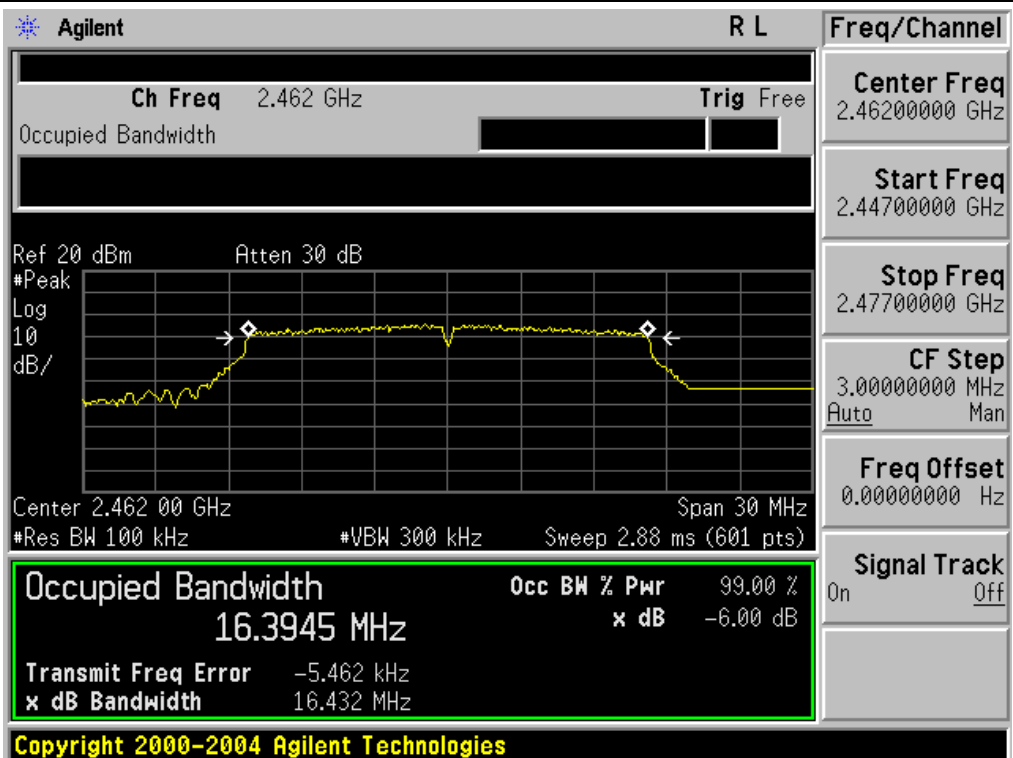




TX CH 06



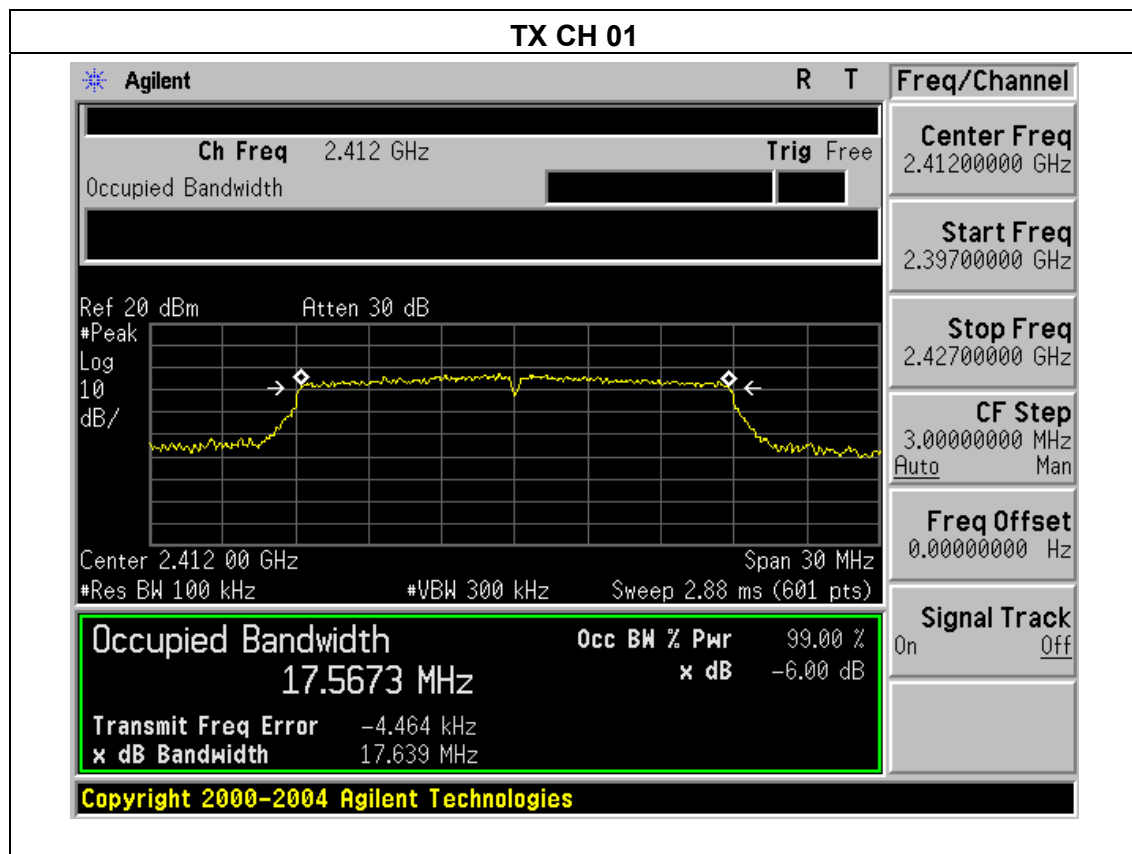
TX CH 11

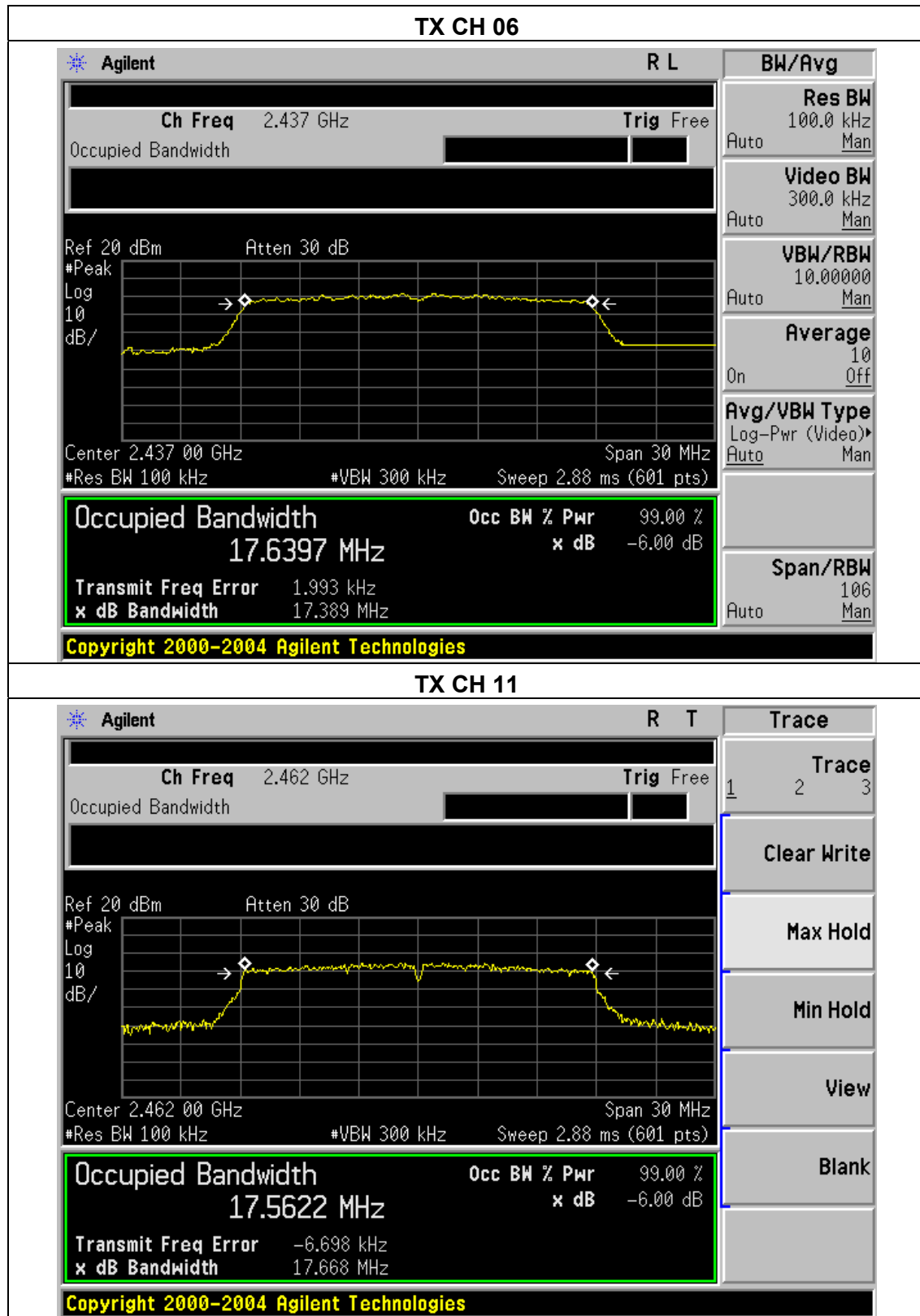




EUT :	Mobile Phone	Model Name :	SMOOTH STAR 5
Temperature :	25°C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX n Mode(20M) /CH01, CH06, CH11		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.639	500	Pass
Middle	2437	17.389	500	Pass
High	2462	17.668	500	Pass

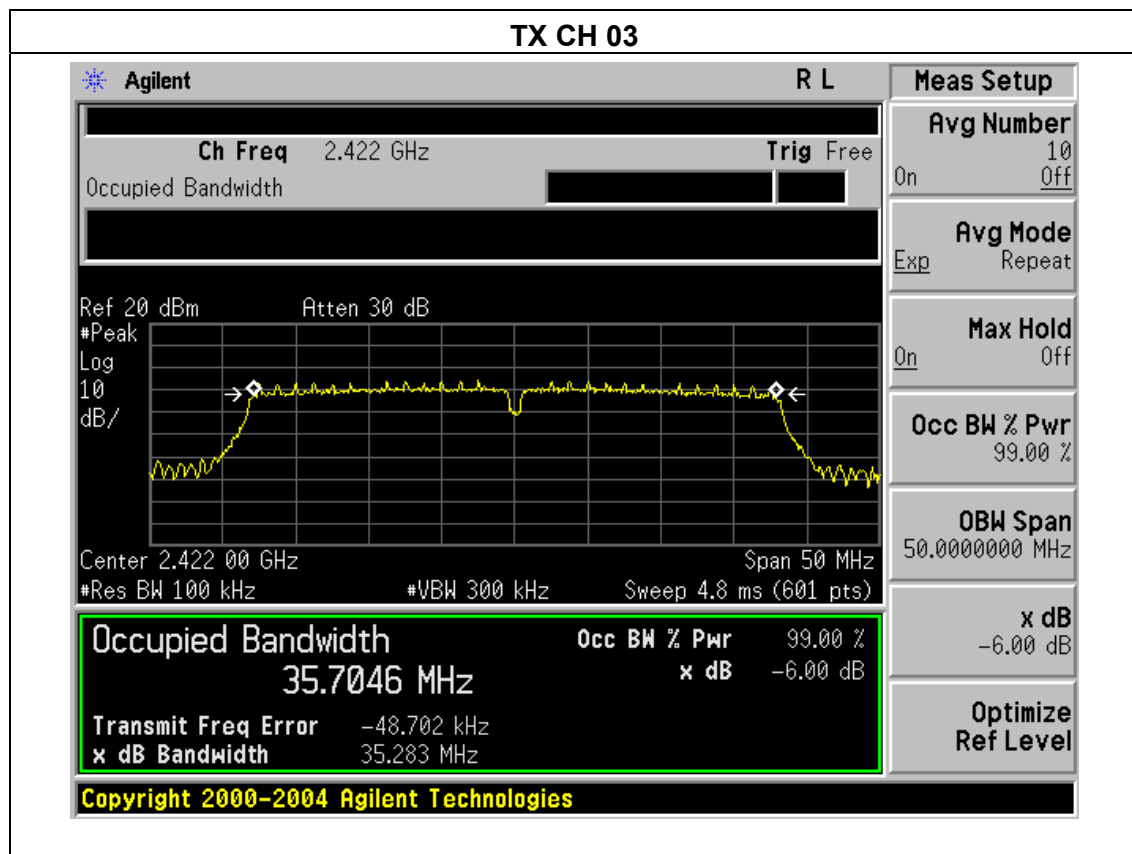


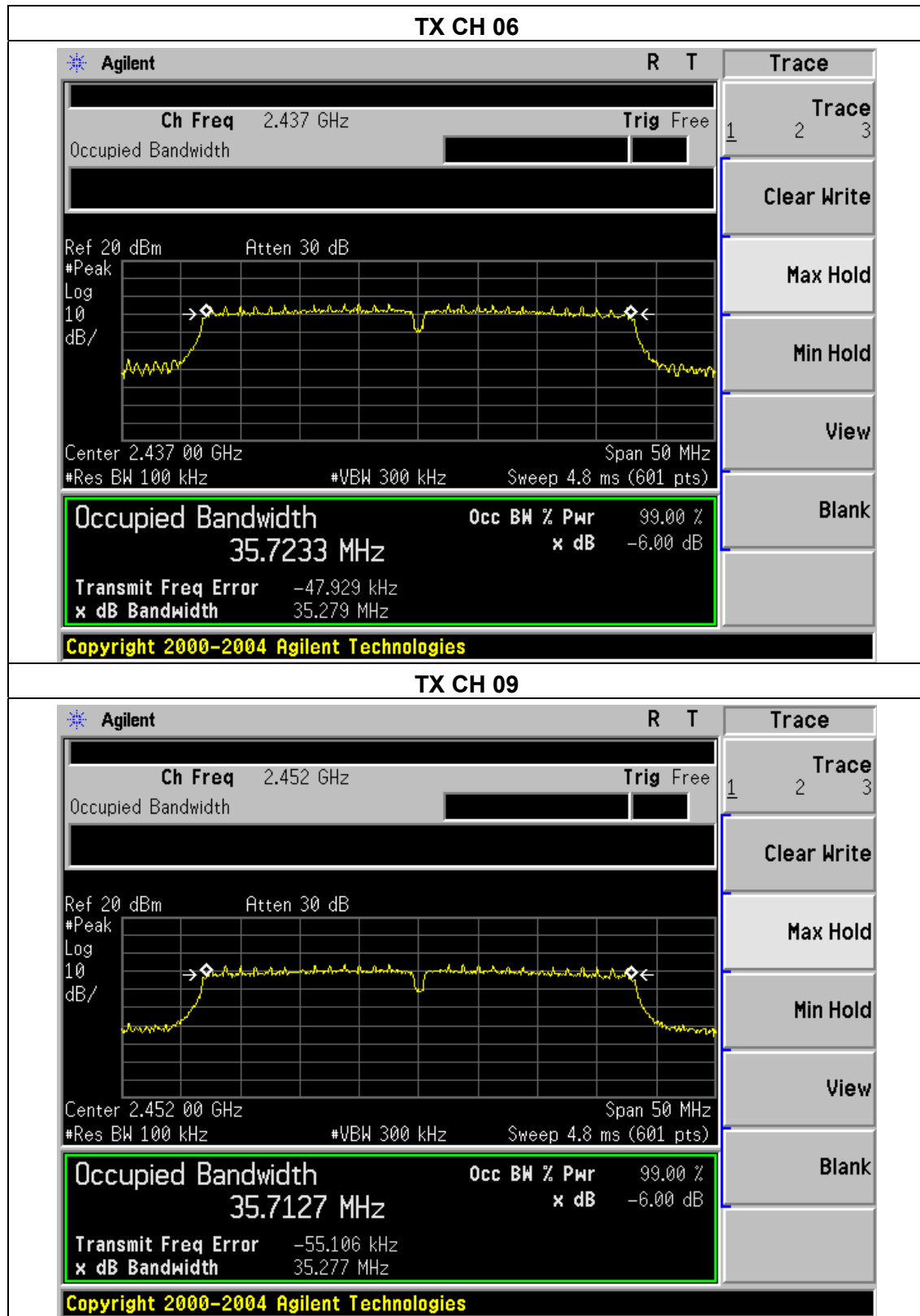




EUT :	Mobile Phone	Model Name :	SMOOTH STAR 5
Temperature :	25°C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX n Mode(40M) /CH03, CH06, CH09		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2422	35.283	500	Pass
Middle	2437	35.279	500	Pass
High	2452	35.277	500	Pass







6. PEAK OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

6.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the Power meter

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 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.

**6.1.5 TEST RESULTS**

EUT :	Mobile Phone	Model Name :	SMOOTH STAR 5
Temperature :	25℃	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX b/g/n(20M)		

TX 802.11b Mode			
Test Channel	Frequency	Maximum Conducted Output Power(PK)	LIMIT
	(MHz)	(dBm)	dBm
CH01	2412	9.36	30
CH06	2437	9.38	30
CH11	2462	9.24	30
TX 802.11g Mode			
CH01	2412	9.26	30
CH06	2437	9.18	30
CH11	2462	9.21	30
TX 802.11n-HT20 Mode			
CH01	2412	8.15	30
CH06	2437	8.14	30
CH11	2462	8.09	30
TX 802.11n-HT40 Mode			
CH03	2422	8.64	30
CH06	2437	8.59	30
CH09	2452	8.43	30



7. 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

APPLICABLE STANDARD

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)).

TEST PROCEDURE

- Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- 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.

7.1 DEVIATION FROM STANDARD

No deviation.

7.2 TEST SETUP



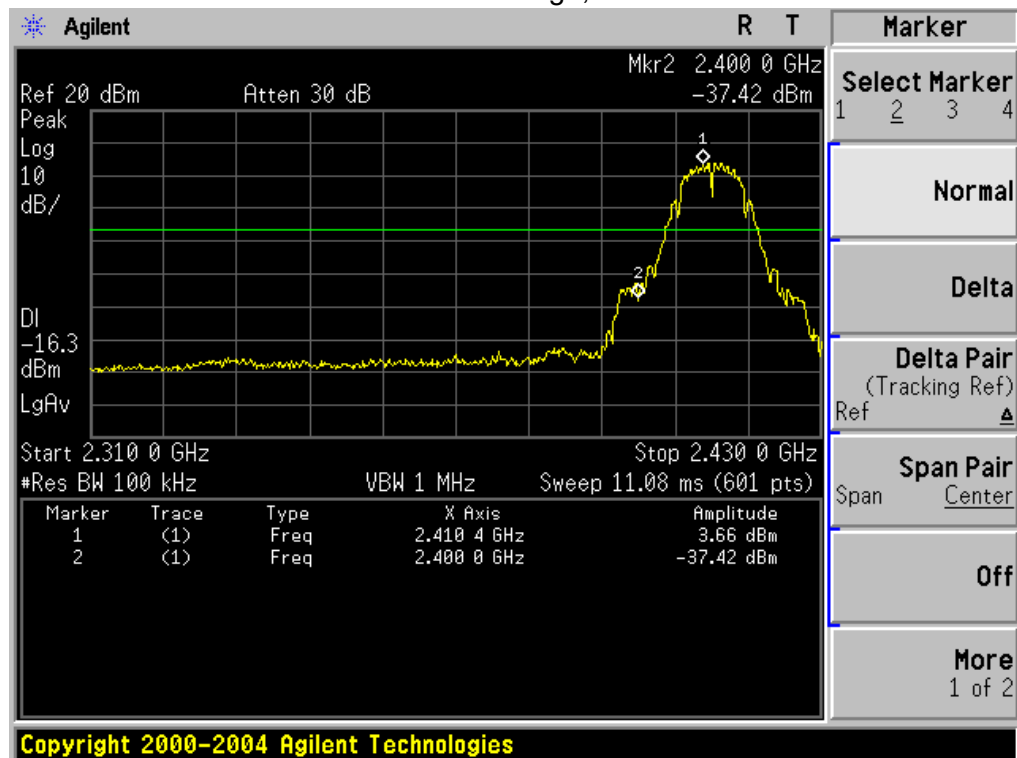
7.3 EUT OPERATION CONDITIONS

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.

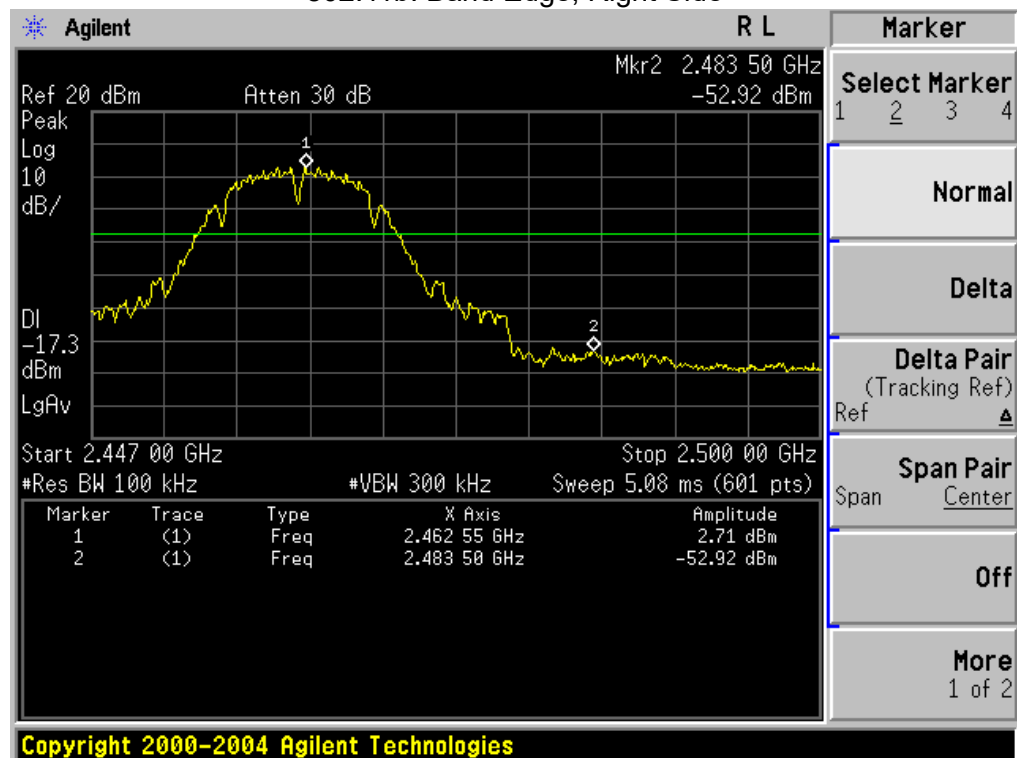


7.4 TEST RESULTS

802.11b: Band Edge, Left Side

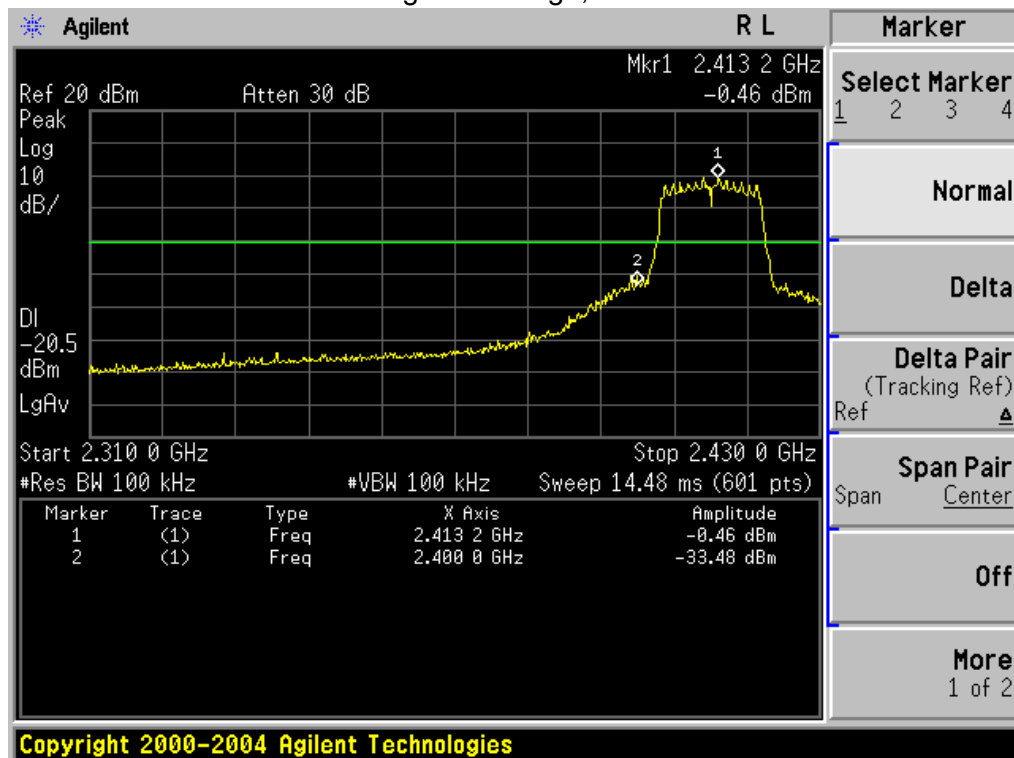


802.11b: Band Edge, Right Side

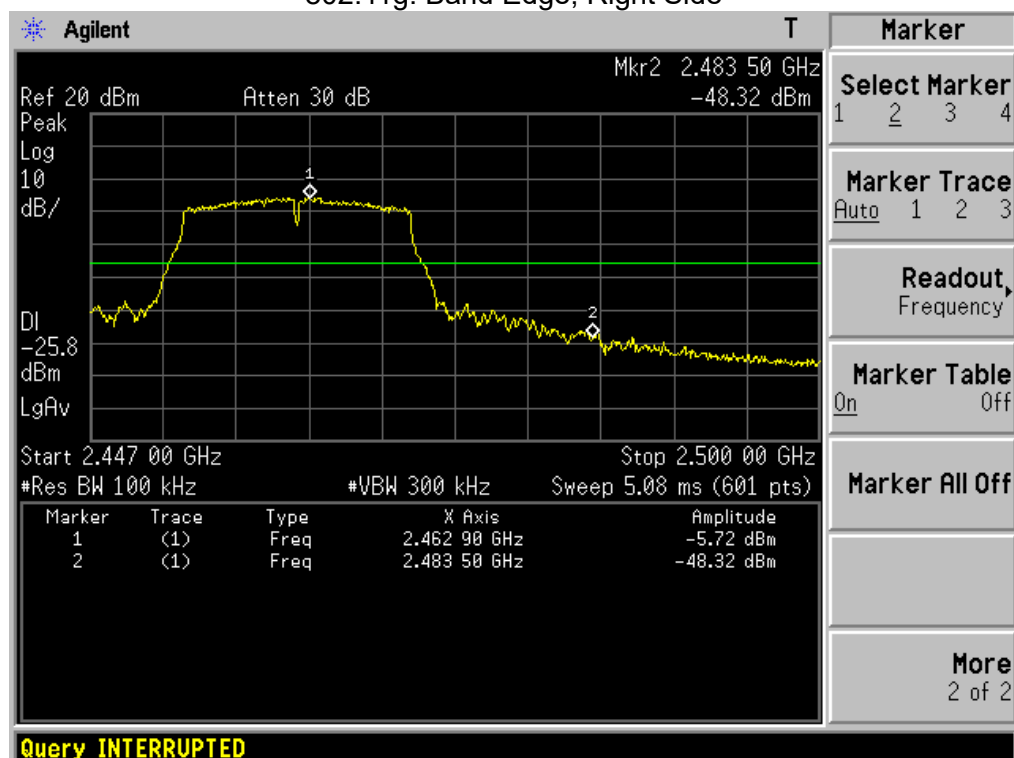




802.11g: Band Edge, Left Side

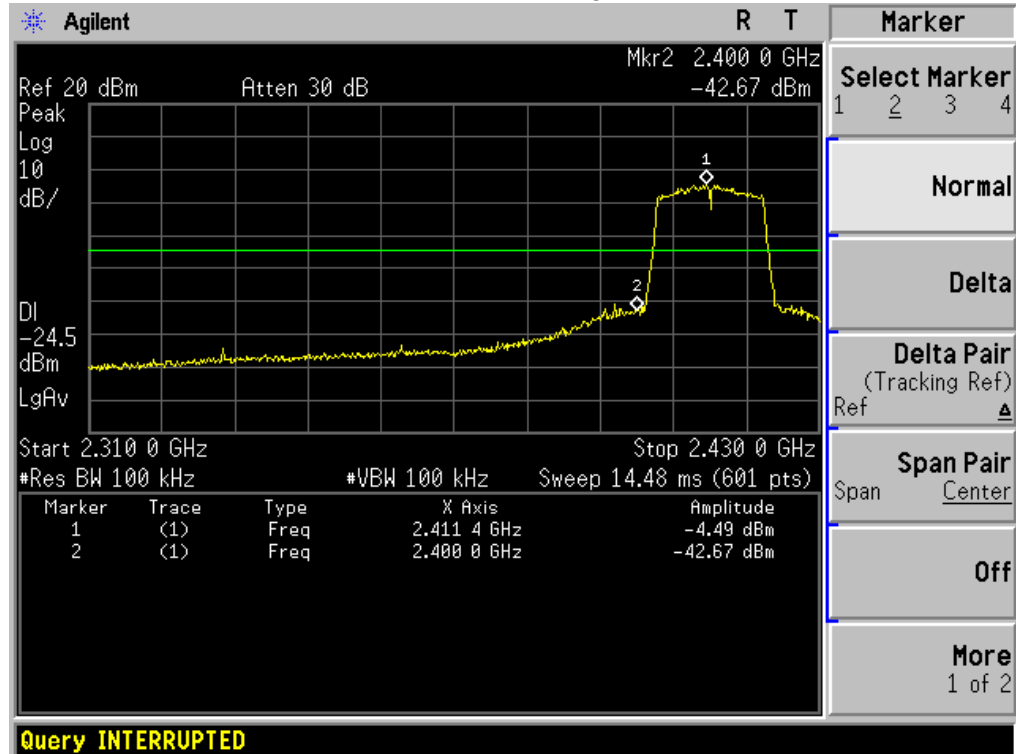


802.11g: Band Edge, Right Side

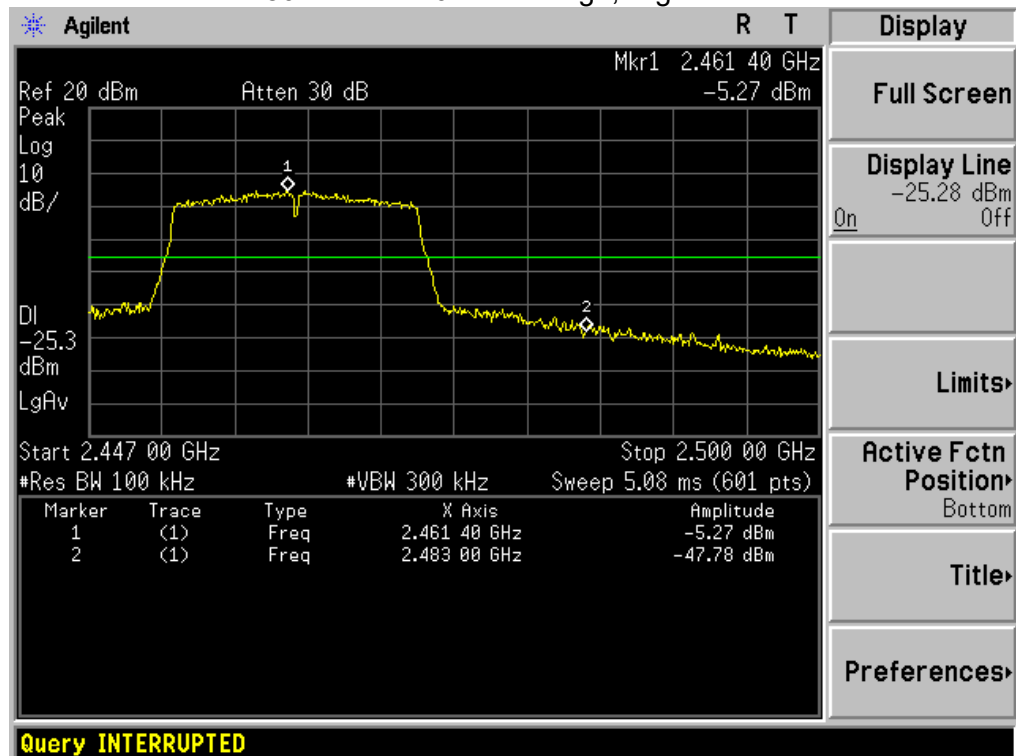




802.11n-HT20: Band Edge, Left Side

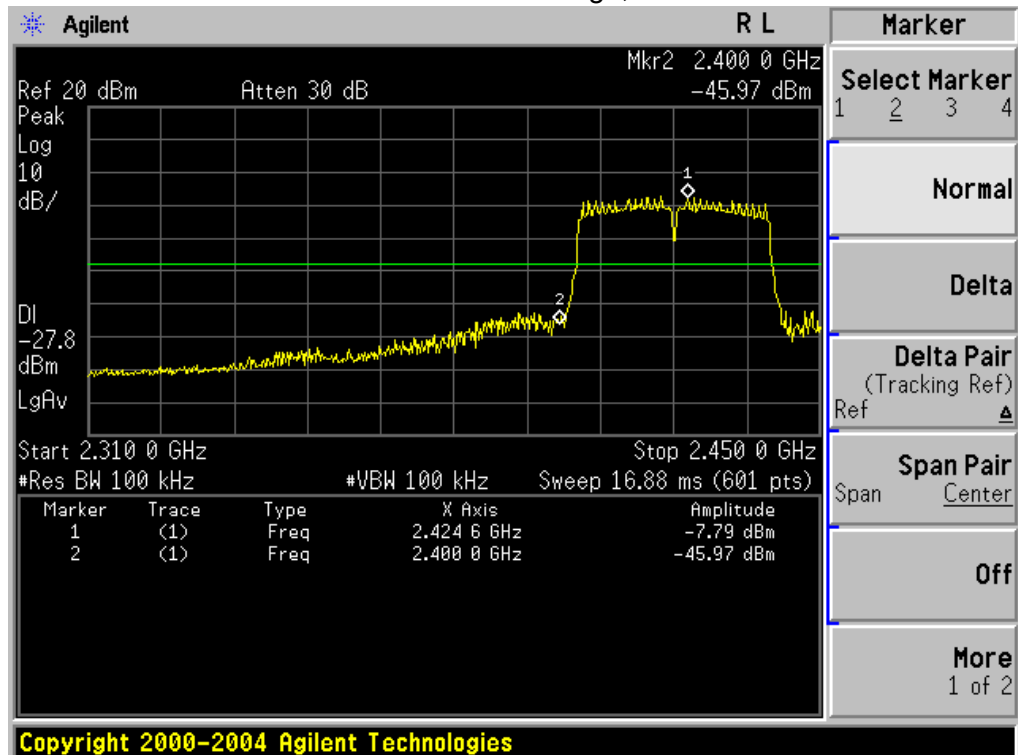


802.11n-HT20: Band Edge, Right Side

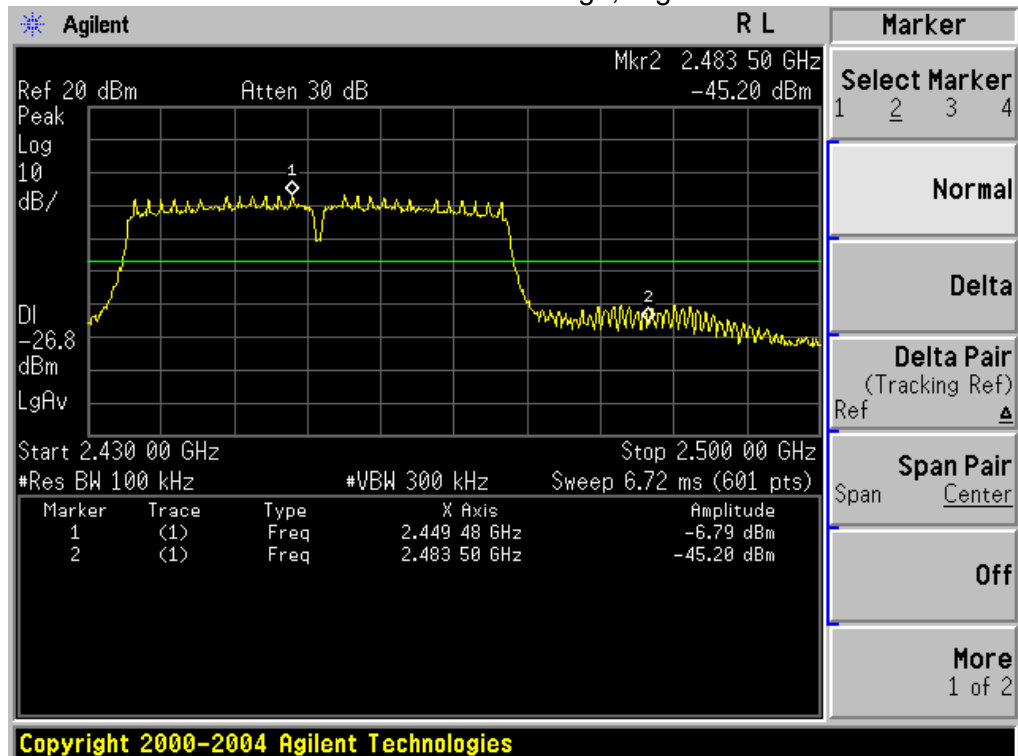




802.11n-HT40: Band Edge, Left Side



802.11n-HT40: Band Edge, Right Side





8. DUTY CYCLE OF TEST SIGNAL

8.1 STANDARD REQUIREMENT

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

8.2 FORMULA:

Duty Cycle = $T_{on} / (T_{on} + T_{off})$

Measurement Procedure:

1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

Duty Cycle:

	Duty Cycle	Duty Fator (dB)
802.11b	95.5%	0.20
802.11g	96.2%	0.17
802.11n(HT20)	99.0%	0.04
802.11n(HT40)	96.5%	0.16

Duty Cycle Factor: $10 * \log (1/0.955) = 0.199$

Duty Cycle Factor: $10 * \log (1/0.962) = 0.168$

Duty Cycle Factor: $10 * \log (1/0.99) = 0.043$

Duty Cycle Factor: $10 * \log (1/0.965) = 0.155$



9. ANTENNA REQUIREMENT

9.1 STANDARD REQUIREMENT

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

9.2 EUT ANTENNA

The EUT antenna is internal antenna,. It comply with the standard requirement.

10. EUT TEST PHOTO

Radiated Measurement Photos



Radiated Measurement Photos





Conducted Measurement Photos



fg

11. EUT PHOTO







***** END OF REPORT *****