FCC TEST REPORT

according to

FCC Rules and Regulations Part 15 Subpart C

Applicant	:	**EGROUP COMPUTER SYSTEMS CO., LTD.**
Address	:	**No.239, Sec. 2, Tiding Blvd., Neihu Dist, Taipei City 14, Taiwan (R.O.C)**
Manufacturer	:	**EGROUP COMPUTER SYSTEMS CO., LTD.**
Address	:	**No.239, Sec. 2, Tiding Blvd., Neihu Dist, Taipei City 14, Taiwan (R.O.C)**
Equipment	:	**Tablet PC**
Model No.	:	**TE70SA3**
FCC ID	:	**2AEKR-TE70SA3**

■ The test result refers exclusively to the test presented test model / sample.

■ Without written approval of ***Cerpass Technology Corp.*** the test report shall not be reproduced except in full.

■ The test report must not be used by the clients to claim product certification approval by **NVLAP** or any agency of the Government.

I HEREBY CERTIFY THAT :
The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.10 – 2013** and the energy emitted by this equipment was ***passed.***
CISPR PUB. 22 and FCC Part 15 in both radiated and conducted emission class B limits. Testing was carried out on Jul 30, 2015 at ***Cerpass Technology Corp.***

Approved By: _____
Miro Chueh

Laboratory accreditation

NVLAP LAB CODE 200814-0

Contents

History of this test report

■ ORIGINAL

☐ Additional attachment as following record

Attachment No.	Issue Date	Description
SEFB1507030	2015-07-30	Initial release

1. Report of Measurements and Examinations

1.1 List of Measurements and Examinations

FCC Rule	Description of Test	Result
§ 15.203	Antenna Requirement	Pass
§ 15.207(a)	Conducted Emission	Pass
§ 15.209(a)	Radiated Emission	Pass
§ 15.247(a)(1)	Channel Carrier Frequencies Separation	Pass
§ 15.247(a)(1)	20dB Bandwidth Measurement	Pass
§ 15.247(a)(1)	Dwell Time	Pass
§ 15.247(b)	Number of Hopping Channels	Pass
§ 15.247(b)	Peak Output Power Measurement Data	Pass
§ 15.247(d)	Band Edges Measurement Data	Pass

2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

Product Name:	Tablet PC	
Model Name:	TE70SA3	
GPS	Class of SRD	Class 3
	Antenna Gain	PCB 1.27dBi
2G:	Support Band	GSM850/PCS1900
	GPRS Class	Class 12
	Uplink	GSM 850: 824~849MHz PCS 1900: 1850~1910MHz
	Downlink	GSM 850: 869~894MHz PCS 1900: 1930~1990MHz
	Type of modulation	GMSK for GPRS; 8PSK for EDGE
	Antenna Type	Dipole
	Antenna Gain	GSM 850: 1.17dBi PCS1900: 1.89dBi
3G	Support Band	WCDMA Band 2/WCDMA Band 5
	Uplink	WCDMA Band 2: 1850~1910MHz WCDMA Band 5: 824~849MHz
	Downlink	WCDMA Band 2: 1930~1990MHz WCDMA Band 5: 869~894MHz
	Type of modulation	QPSK for Uplink
	Antenna Type	Dipole
	Antenna Gain	Band 2: 1.98dBi Band 5: 1.34dBi
Bluetooth:	Bluetooth Specification	3.0HS + Version 4.0
	Modulation Type	V3.0+HS: GFSK, Pi/4 DQPSK, 8DPSK V4.0: GFSK
	Frequency Range	2402 - 2480 MHz

	Channel Number	V3.0+HS: 79 V4.0: 40
	Data Rate	V3.0+HS: 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK) V4.0: 1Mbps(GFSK)
	Channel Separation	V3.0+HS: 1MHz V4.0: 2MHz
	Antenna Type/ gain	PCB Antenna 1.27 dBi
Wi-Fi	Spreading	802.11b: DSSS 802.11g / n: OFDM
	Frequency Range	802.11b/g/n(20MHz): 2412-2462MHz
	Number of Channels	802.11b/g/n (20MHz):11
	Data Rate	802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: up to 300Mbps
	Antenna Type	PCB Antenna
	Peak Antenna Gain	1.27dBi
Adapter	Model No.:	WB-10E05FU
	Input	100-240V~50-60Hz 0.4A max.
	Output:	DC 5V, 2A

2.2 Carrier Frequency of Channels

Bluetooth Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2403 MHz	02	2404 MHz	03	2405 MHz
04	2406 MHz	05	2407 MHz	06	2408 MHz	07	2409 MHz
08	2410 MHz	09	2411 MHz	10	2412 MHz	11	2413 MHz
12	2414 MHz	13	2415 MHz	14	2416 MHz	15	2417 MHz
16	2418 MHz	17	2419 MHz	18	2420 MHz	19	2421 MHz
20	2422 MHz	21	2423 MHz	22	2424 MHz	23	2425 MHz
24	2426 MHz	25	2427 MHz	26	2428 MHz	27	2429 MHz
28	2430 MHz	29	2431 MHz	30	2432 MHz	31	2433 MHz
32	2434 MHz	33	2435 MHz	34	2436 MHz	35	2437 MHz
36	2438 MHz	37	2439 MHz	38	2440 MHz	39	2441 MHz
40	2442 MHz	41	2443 MHz	42	2444 MHz	43	2445 MHz
44	2446 MHz	45	2447 MHz	46	2448 MHz	47	2449 MHz
48	2450 MHz	49	2451 MHz	50	2452 MHz	51	2453 MHz
52	2454 MHz	53	2455 MHz	54	2456 MHz	55	2457 MHz
56	2458 MHz	57	2459 MHz	58	2460 MHz	59	2461 MHz
60	2462 MHz	61	2463 MHz	62	2464 MHz	63	2465 MHz
64	2466 MHz	65	2467 MHz	66	2468 MHz	67	2469 MHz
68	2470 MHz	69	2471 MHz	70	2472 MHz	71	2473 MHz
72	2474 MHz	73	2475 MHz	74	2476 MHz	75	2477 MHz
76	2478 MHz	77	2479 MHz	78	2480 MHz	N/A	N/A

2.3 Test Mode & Test Software

a. During testing, the interface cables and equipment positions were varied according to ANSI C63.10
b. The complete test system included EUT for RF test.
c. The EUT was executed to keep transmitting and receiving data via Bluetooth.
d. The following test mode was performed for conduction and radiation test:
GFSK: CH 00: 2402MHz, CH 39: 2441MHz, CH 78: 2480MHz.
8DPSK: CH 00: 2402MHz, CH 39: 2441MHz, CH 78: 2480MHz.

2.4 Description of Test System

Device	Manufacturer	Model No.	Description
Remote workstation			
N/A			

Use Cable:

Cable	Quantity	Description
N/A		

2.5 General Information of Test

Test Site:	Cerpass Technology (Suzhou) Co.,Ltd
Test Site Location :	No.66,Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China
NVLAP LAB Code :	200814-0
FCC Registration Number :	916572, 331395
IC Registration Number :	7290A-1, 7290A-2
VCCI Registration Number :	T-1945 for Telecommunication Test C-2919 for Conducted emission test R-2670 for Radiated emission test below 1GHz G-227 for Radiated emission test above 1GHz
Frequency Range Investigated:	Conducted: from 150kHz to 30MHz Radiation: from 30MHz to 25000MHz
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.

2.6 Measurement Uncertainty

Measurement Item	Measurement Uncertainty
Conducted Emission	±2.71 dB
Radiation test (10m) below 1GHz	Vertical : ±3.89 dB
	Horizontal: ±4.11 dB
Radiation test (3m) below 1GHz	Vertical : ±4.11 dB
	Horizontal: ±4.10 dB
20 dB Bandwidth	7500 Hz
Maximum Peak Output Power	±1.4 dB
100kHz Bandwidth of Frequency Band Edges	±2.2 dB
Power Spectral Density	±1.3870 dB

3. Antenna Requirements

3.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4. Test of Conducted Emission

4.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.10-2013 Section 6.2. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 6.2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

4.2 Test Procedures

a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.

b. Connect EUT to the power mains through a line impedance stabilization network (LISN).

c. All the support units are connecting to the other LISN.

d. The LISN provides 50 ohm coupling impedance for the measuring instrument.

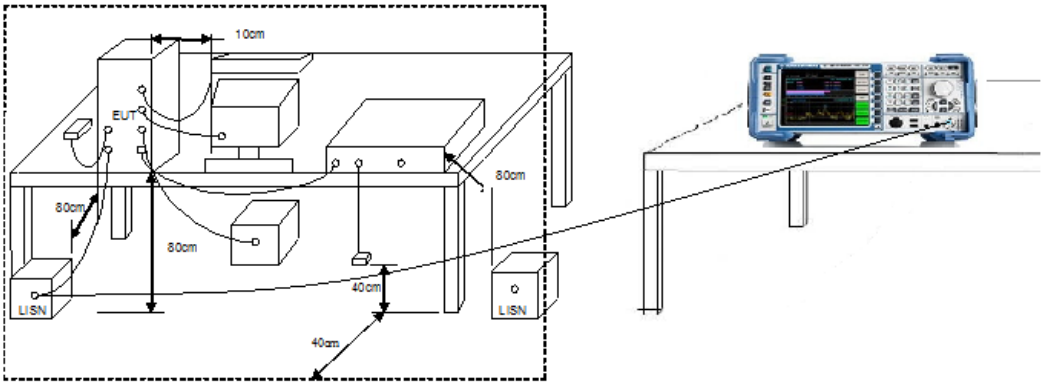
e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.

f. Both sides of AC line were checked for maximum conducted interference.

g. The frequency range from 150 kHz to 30 MHz was searched.

h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

4.3 Typical Test Setup

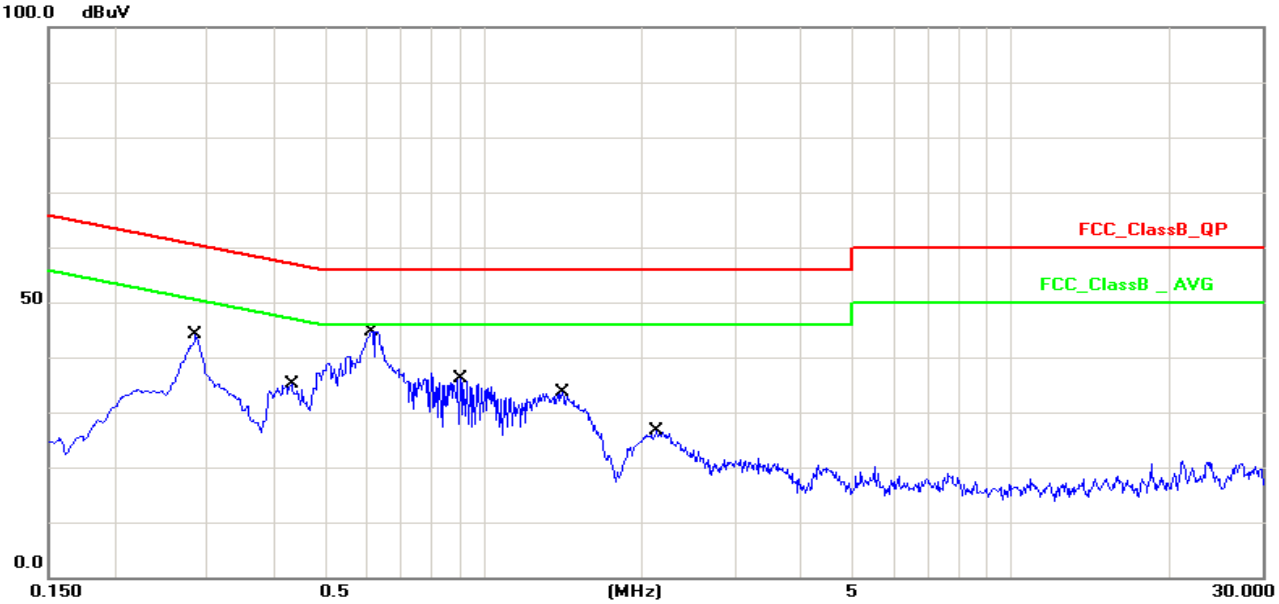


4.4 Measurement equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Test Receiver	R&S	ESCI	100565	2015.03.24	2016.03.23
AMN	R&S	ESH2-Z5	100182	2014.09.04	2015.09.03
Two-Line V-Network	R&S	ENV216	100325	2014.12.04	2015.12.03
ISN	FCC	FCC-TLISN-T2-02	20379	2015.03.24	2016.03.23
ISN	FCC	FCC-TLISN-T4-02	20380	2015.03.24	2016.03.23
ISN	FCC	FCC-TLISN-T8-02	20381	2015.03.24	2016.03.23
ISN	TESEQ	ISN ST08	30175	2015.03.24	2016.03.23
Current Probe	R&S	EZ-17	100303	2015.04.04	2016.04.03
Passive Voltage Probe	R&S	ESH2-Z3	100026	2015.03.29	2016.03.28
Pulse Limiter	R&S	ESH3-Z2	100529	2015.03.29	2016.03.28
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-004	2015.03.31	2016.03.30

4.5 Test Result and Data

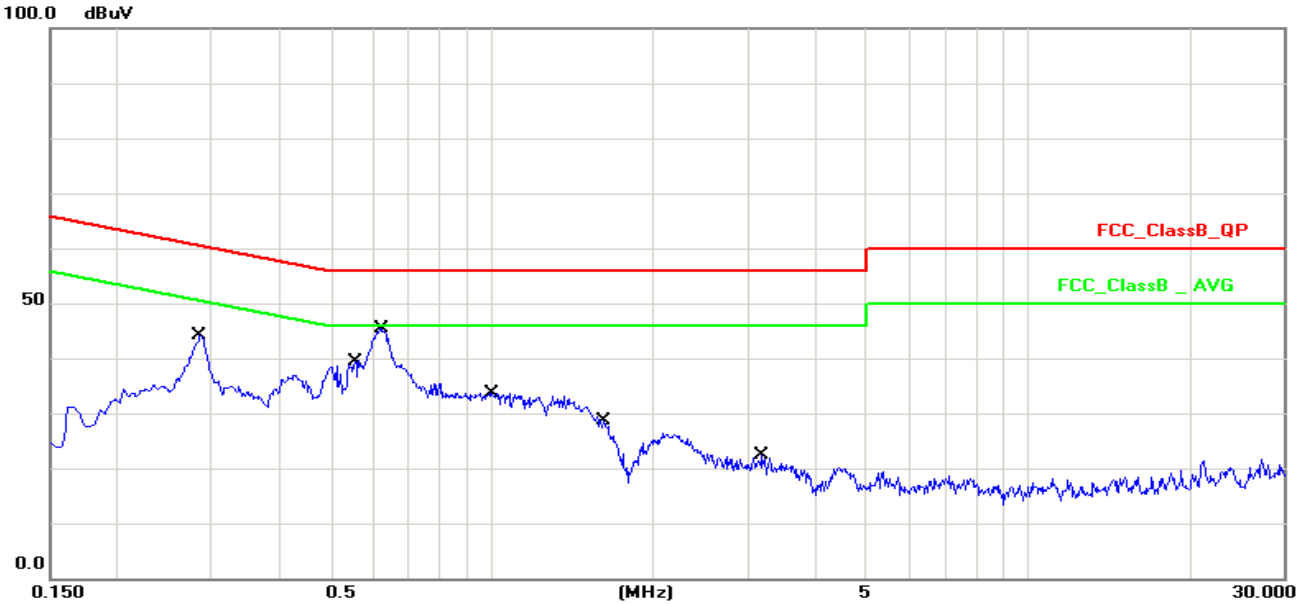
Test Mode :	Mode 1: Normal Operation with BT on		
AC Power :	AC 120V/60Hz	Phase :	LINE
Temperature :	26°C	Humidity :	60%
Pressure(mbar) :	1002	Date:	2015/07/11



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2860	10.14	32.12	42.26	60.64	-18.38	QP
2	0.2860	10.14	18.93	29.07	50.64	-21.57	AVG
3	0.4340	10.15	25.54	35.69	57.18	-21.49	QP
4	0.4340	10.15	9.75	19.90	47.18	-27.28	AVG
5	0.6140	10.16	36.82	46.98	56.00	-9.02	QP
6	0.6140	10.16	15.15	25.31	46.00	-20.69	AVG
7	0.9060	10.17	23.33	33.50	56.00	-22.50	QP
8	0.9060	10.17	4.78	14.95	46.00	-31.05	AVG
9	1.4180	10.18	17.73	27.91	56.00	-28.09	QP
10	1.4180	10.18	5.96	16.14	46.00	-29.86	AVG
11	2.1380	10.18	10.93	21.11	56.00	-34.89	QP
12	2.1380	10.18	1.75	11.93	46.00	-34.07	AVG

Note: Measurement Level = Reading Level + Correct Factor

Test Mode :	Mode 1: Normal Operation with BT on		
AC Power :	AC 120V/60Hz	Phase :	NEUTRAL
Temperature :	26°C	Humidity :	60%
Pressure(mbar) :	1002	Date:	2015/07/11



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2860	10.14	32.12	42.26	60.64	-18.38	QP
2	0.2860	10.14	18.96	29.10	50.64	-21.54	AVG
3	0.5580	10.15	30.46	40.61	56.00	-15.39	QP
4	0.5580	10.15	11.05	21.20	46.00	-24.80	AVG
5	0.6220	10.16	37.35	47.51	56.00	-8.49	QP
6	0.6220	10.16	15.57	25.73	46.00	-20.27	AVG
7	1.0020	10.18	20.31	30.49	56.00	-25.51	QP
8	1.0020	10.18	3.65	13.83	46.00	-32.17	AVG
9	1.6220	10.18	12.02	22.20	56.00	-33.80	QP
10	1.6220	10.18	2.88	13.06	46.00	-32.94	AVG
11	3.2020	10.20	4.24	14.44	56.00	-41.56	QP
12	3.2020	10.20	-2.41	7.79	46.00	-38.21	AVG

Note: Measurement Level = Reading Level + Correct Factor

5. Test of Radiated Emission

5.1 Test Limit

In any 100kHz 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

FREQUENCIES(MHz)	FIELD STRENGTH(microvolts/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

For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the above table.

Frequency (MHz)	Distance Meters	Radiated (dB μ V/ M)
30-230	10	30
230-1000	10	37

5.2 Test Procedures

a. The EUT was placed on a rotatable table top 0.8 meter for frequency below 1GHz and 1.5meter for frequency above 1GHz above ground.

b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.

c. The table was rotated 360 degrees to determine the position of the highest radiation.

d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.

e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.

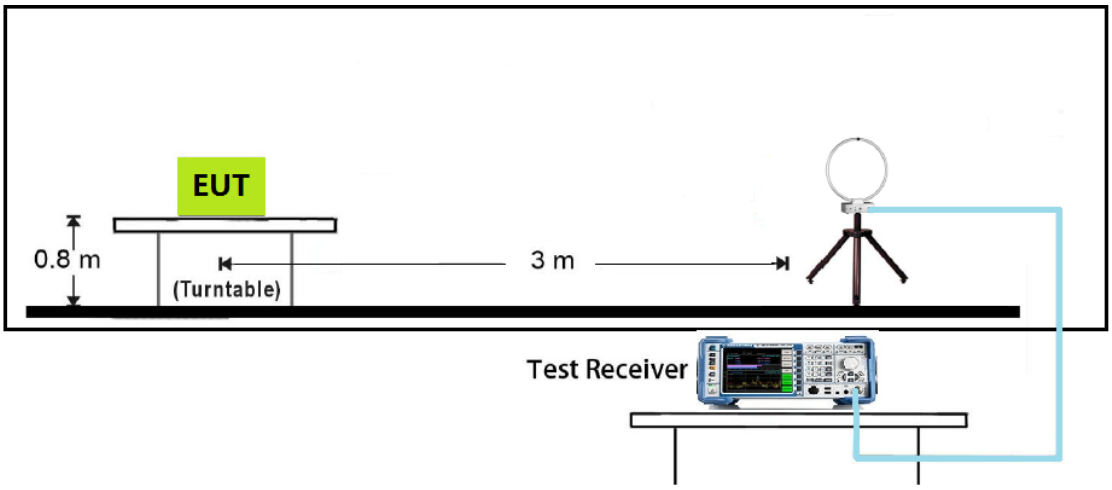
f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.

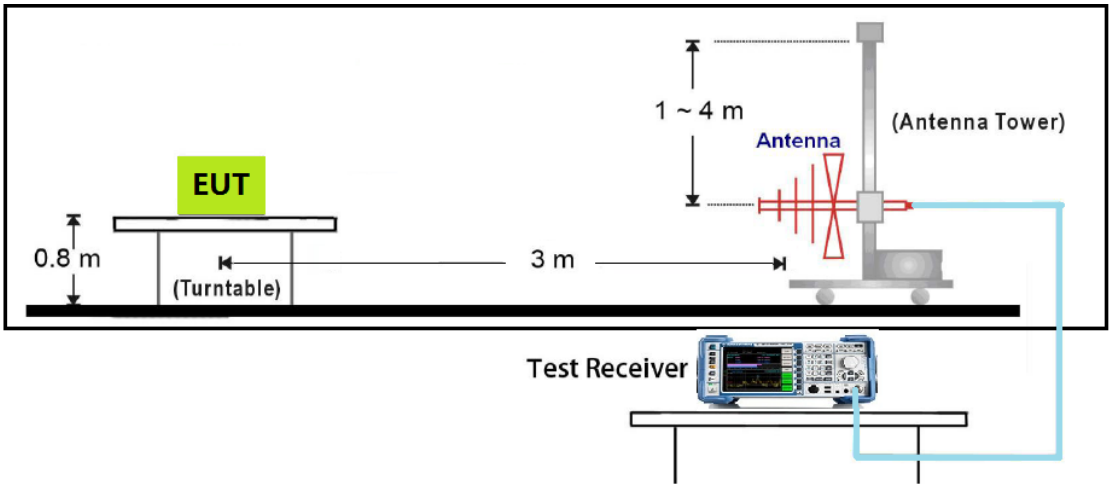
h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

5.3 Typical Test Setup

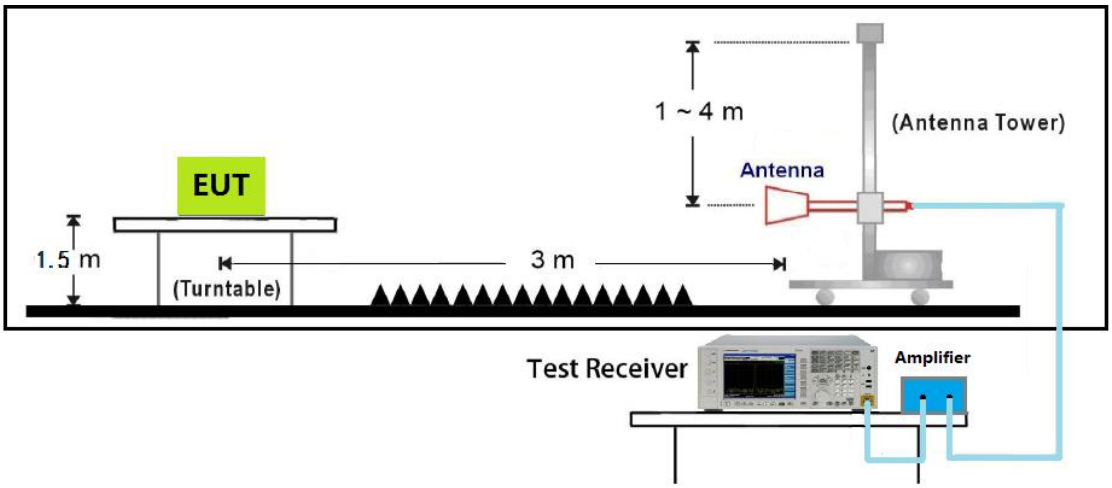
9kHZ~30MHz Test Setup



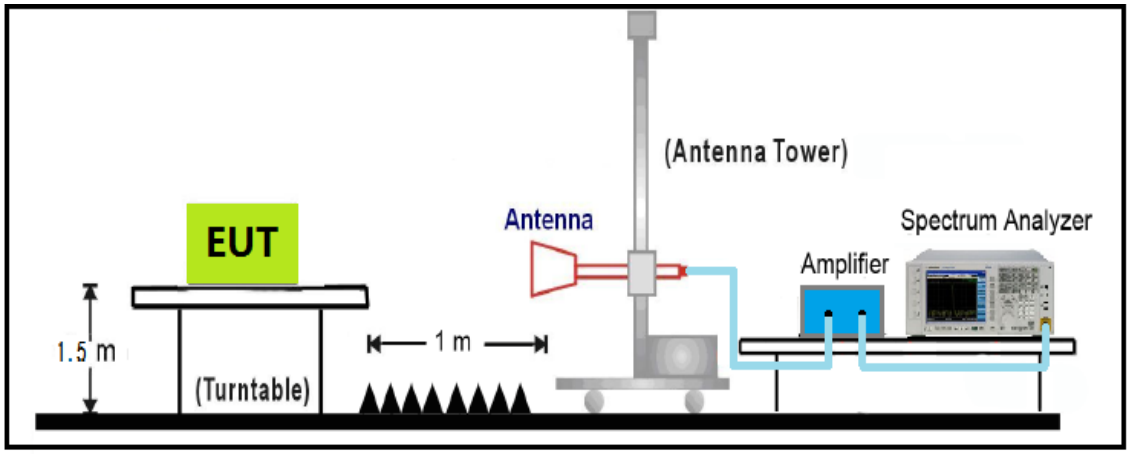
Below 1GHz Test Setup



1GHz~18GHz Test Setup



18GHz~40GHz Test Setup



5.4 Measurement equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
EMI Test Receiver	R&S	ESCI	100563	2015.02.10	2016.02.09
H64 Preamplifier	HP	8447F	3113A05582	2015.03.24	2016.03.23
Preamplifier	Agilent	8449B	3008A02342	2015.03.24	2016.03.23
Ultra Broadband Antenna	R&S	HL562	100362	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	9170-348	2015.05.24	2016.05.23
Spectrum Analyzer	R&S	FSP40	100324	2015.03.23	2016.03.24
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30

5.5 Test Result and Data

The 9kHz-30MHz spurious emission is under limit 20dB more.

5.5.1 Test Result and Data of Transmitter

Mode 1: Transmitter-1Mbps(GFSK_DH5)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
00	H	339.1	4.3	21.7	26.0	46	-20.0	QP
	H	549.8	5.8	26.7	32.5	46	-13.5	QP
	H	3490.5	53.3	-15.5	37.8	54(Note3)	-16.2	PK
	H	4799.5	61.7	-11.9	49.8	54(Note3)	-4.2	PK
	H	7443.0	48.2	-2.5	45.7	54(Note3)	-8.3	PK
	H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
39	V	353.0	5.0	22.1	27.1	46	-18.9	QP
	V	510.2	6.9	25.4	32.3	46	-13.7	QP
	V	3499.0	52.2	-15.4	36.8	54(Note3)	-17.2	PK
	H	4884.5	61.3	-11.7	49.6	54(Note3)	-4.4	PK
	V	7324.0	49.0	-3.0	46.0	54(Note3)	-8.0	PK
	H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
78	H	349.7	4.8	22.1	26.9	46	-19.1	QP
	V	558.4	5.8	26.7	32.5	46	-13.5	QP
	V	3507.5	52.7	-15.4	37.3	54(Note3)	-16.7	PK
	H	4961.0	63.5	-11.4	52.1	54(Note3)	-1.9	PK
	H	7630.0	48.1	-1.9	46.2	54(Note3)	-7.8	PK
	V	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Mode 2: Transmitter-2Mbps(Pi/4 DQPSK_DH5)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0	V	357.1	4.7	22.2	26.9	46	-19.1	QP
	V	554.8	5.4	26.6	32.0	46	-14.0	QP
	H	3448.0	52.4	-15.8	36.6	54(Note3)	-17.4	PK
	H	4799.5	59.6	-11.9	47.7	54(Note3)	-6.3	PK
	V	7332.5	47.1	-3.0	44.1	54(Note3)	-9.9	PK
	H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
39	H	374.2	4.8	22.7	27.5	46	-18.5	QP
	H	559.4	5.3	26.7	32.0	46	-14.0	QP
	V	3329.0	54.3	-16.2	38.1	54(Note3)	-15.9	PK
	H	4884.5	61.5	-11.7	49.8	54(Note3)	-4.2	PK
	V	7434.5	49.2	-2.6	46.6	54(Note3)	-7.4	PK
	H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
78	V	364.2	5.0	22.4	27.4	46	-18.6	QP
	V	537.7	5.8	26.3	32.1	46	-13.9	QP
	V	3388.5	53.1	-16.1	37.0	54(Note3)	-17.0	PK
	H	4961.0	61.5	-11.4	50.1	54(Note3)	-3.9	PK
	H	7511.0	47.9	-2.4	45.5	54(Note3)	-8.5	PK
	H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Mode 3: Transmitter-3Mbps(8DPSK_DH5)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0	H	370.8	5.0	22.5	27.5	46	-18.5	QP
	H	543.0	5.1	26.4	31.5	46	-14.5	QP
	V	3465.0	52.3	-15.7	36.6	54(Note3)	-17.4	PK
	H	4799.5	60.0	-11.9	48.1	54(Note3)	-5.9	PK
	H	7256.0	49.3	-3.3	46.0	54(Note3)	-8.0	PK
	H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
39	H	2441.0	67.1	31.2	98.3	Fundamental	/	PK
	V	344.9	4.4	21.9	26.3	46	-19.7	QP
	V	577.2	5.0	26.7	31.7	46	-14.3	QP
	V	3329.0	55.5	-16.2	39.3	54(Note3)	-14.7	PK
	H	4884.5	62.2	-11.7	50.5	54(Note3)	-3.5	PK
	H	7451.5	47.6	-2.5	45.1	54(Note3)	-8.9	PK
	H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
78	H	2480.0	68.9	31.2	100.1	Fundamental	/	PK
	H	347.4	5.6	22.0	27.6	46	-18.4	QP
	H	548.0	5.4	26.6	32.0	46	-14.0	QP
	V	3329.0	52.8	-16.2	36.6	54(Note3)	-17.4	PK
	H	4961.0	62.7	-11.4	51.3	54(Note3)	-2.7	PK
	V	7230.5	49.3	-3.3	46.0	54(Note3)	-8.0	PK
	H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

6. 20dB Bandwidth Measurement Data

6.1 Test Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than125 mW.

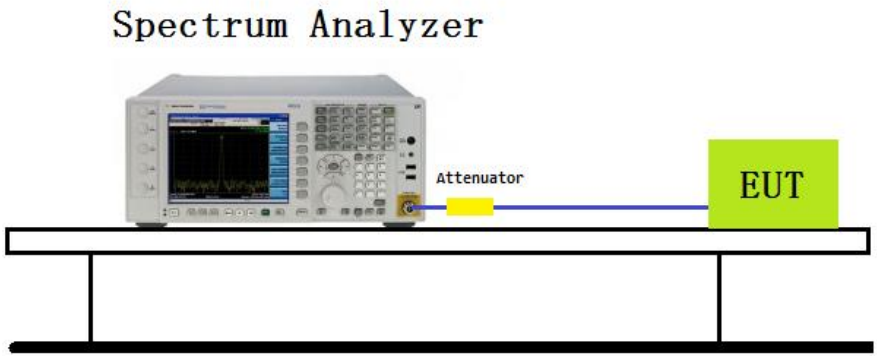
6.2 Test Procedures

a. The transmitter output was connected to the spectrum analyzer.

b. Set RBW of spectrum analyzer to 30 KHz and VBW to 100 KHz.

c. The 20 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20 dB.

6.3 Test Setup Layout



6.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	Agilent	E4407B	MY44211883	2014.09.02	2015.09.03

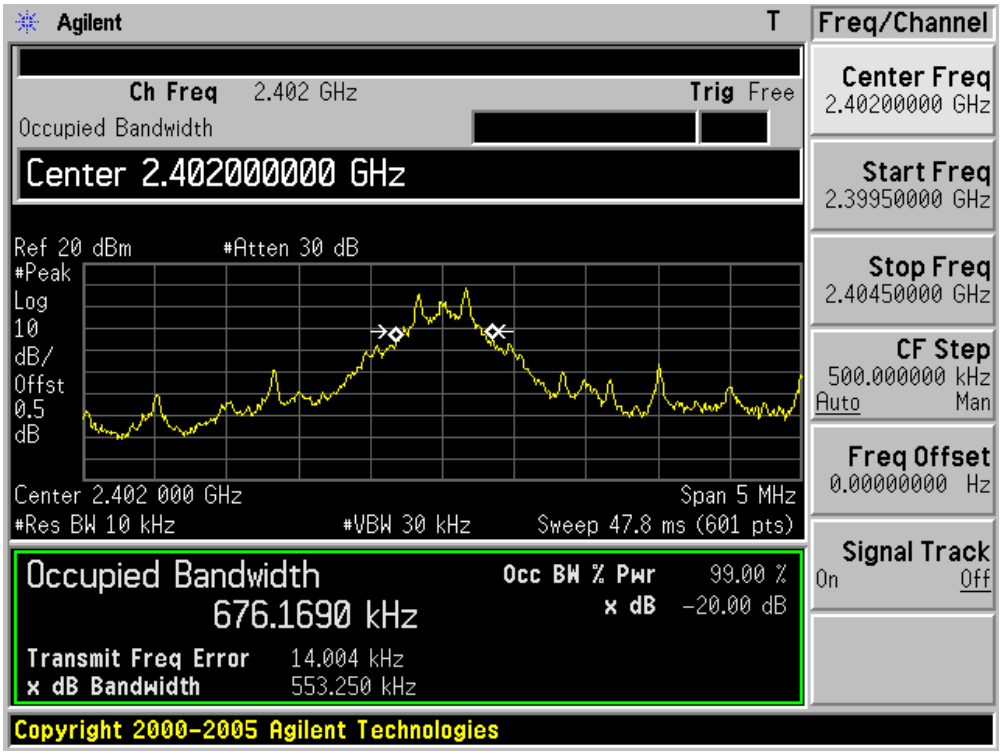
6.5 Test Result and Data

Test Date: Jul 27, 2015	Temperature: 25℃
Atmospheric pressure: 1020 hPa	Humidity: 55%

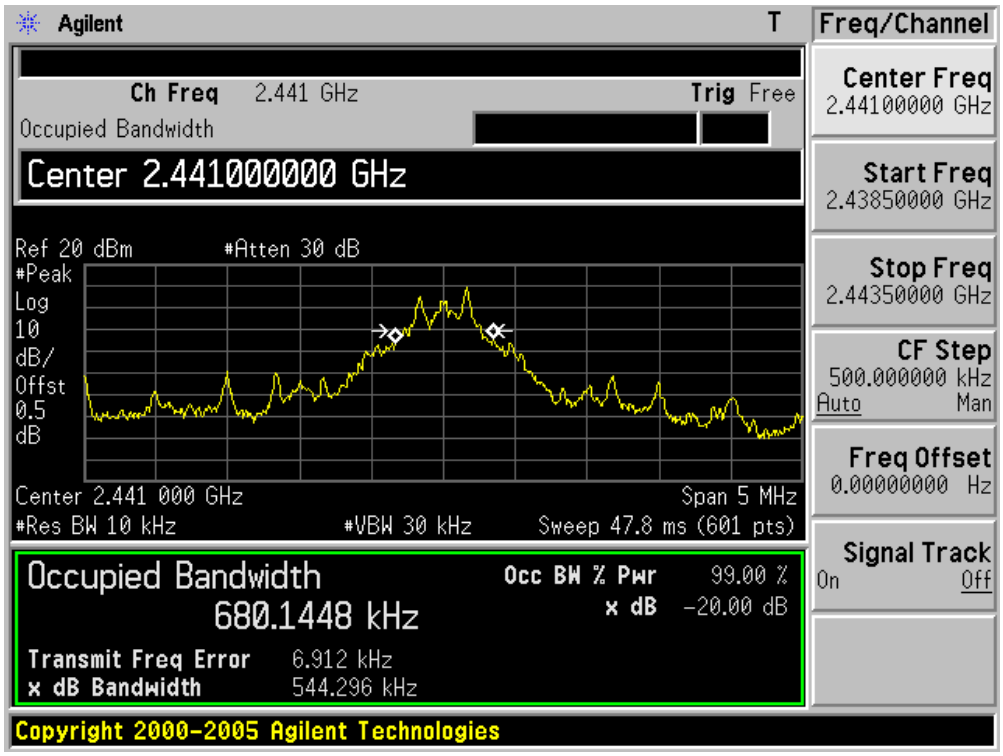
Product	Tablet PC
Test Item	Occupied Bandwidth
Test Site	AC104
Test Mode	Mode 1: Transmitter-1Mbps (GFSK_DH5)

Channel No.	Frequency(MHz)	20dB Bandwidth(kHz)	99% Bandwidth(kHz)
00	2402	553.25	676.17
39	2441	544.30	680.14
78	2480	542.10	675.45

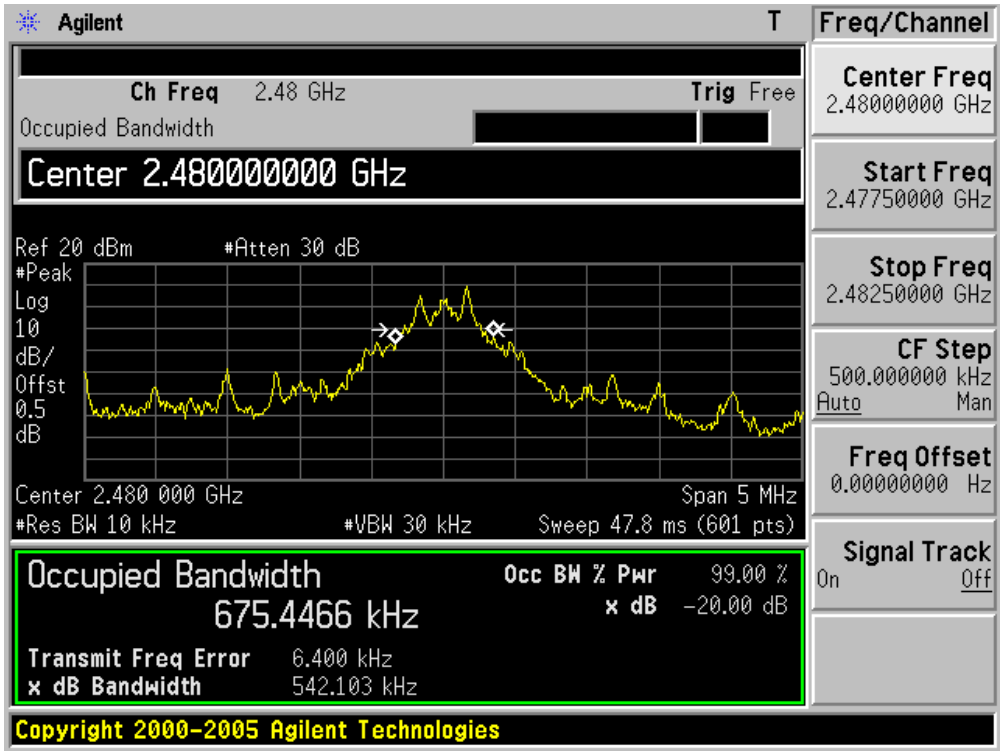
Channel 00 (2402MHz)



Channel 39 (2441MHz)



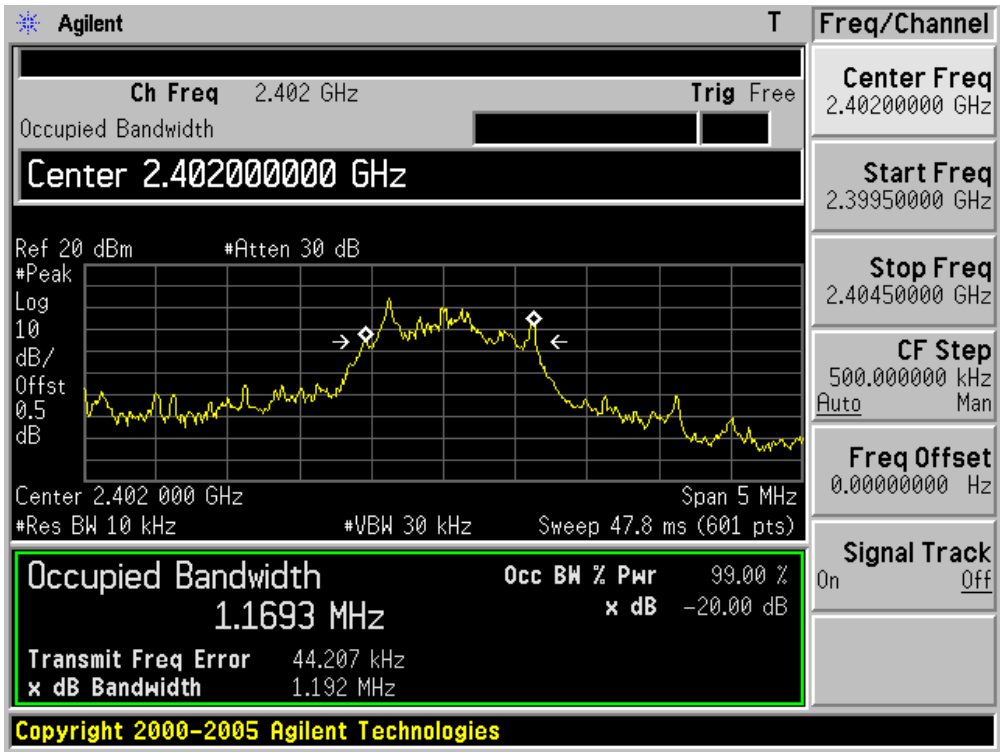
Channel 78 (2480MHz)



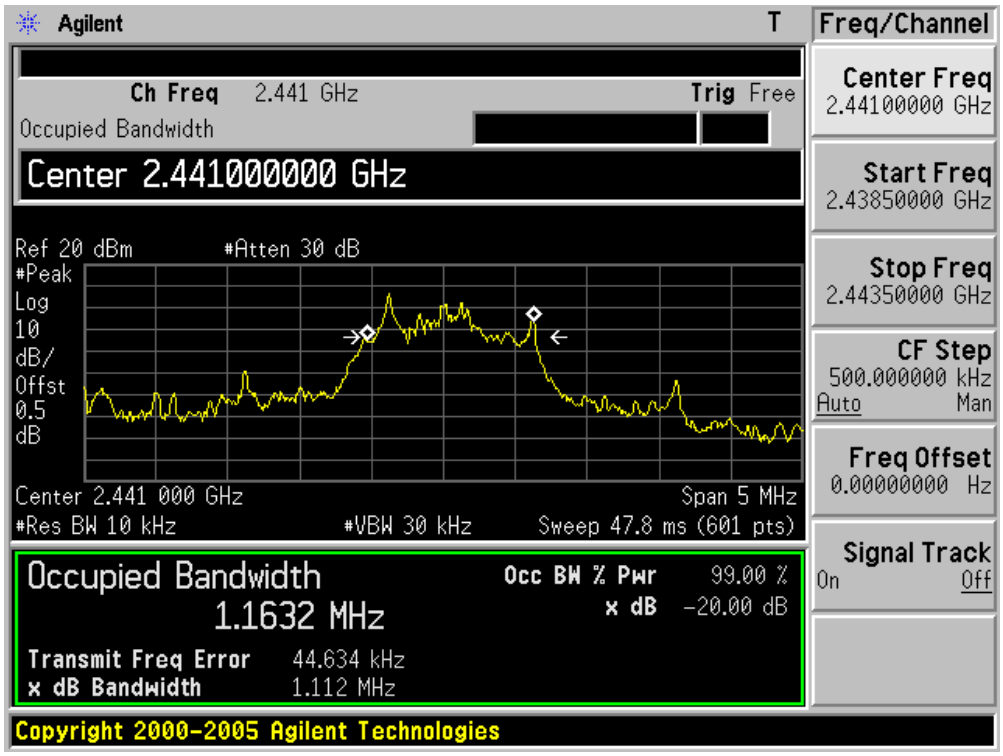
Product	:	Tablet PC
Test Item	:	Occupied Bandwidth
Test Site	:	AC104
Test Mode	:	Mode 2: Transmitter-2Mbps (Pi/4 DQPSK_DH5)

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1192.0	1169.3
39	2441	1112.0	1163.2
78	2480	1115.0	1164.3

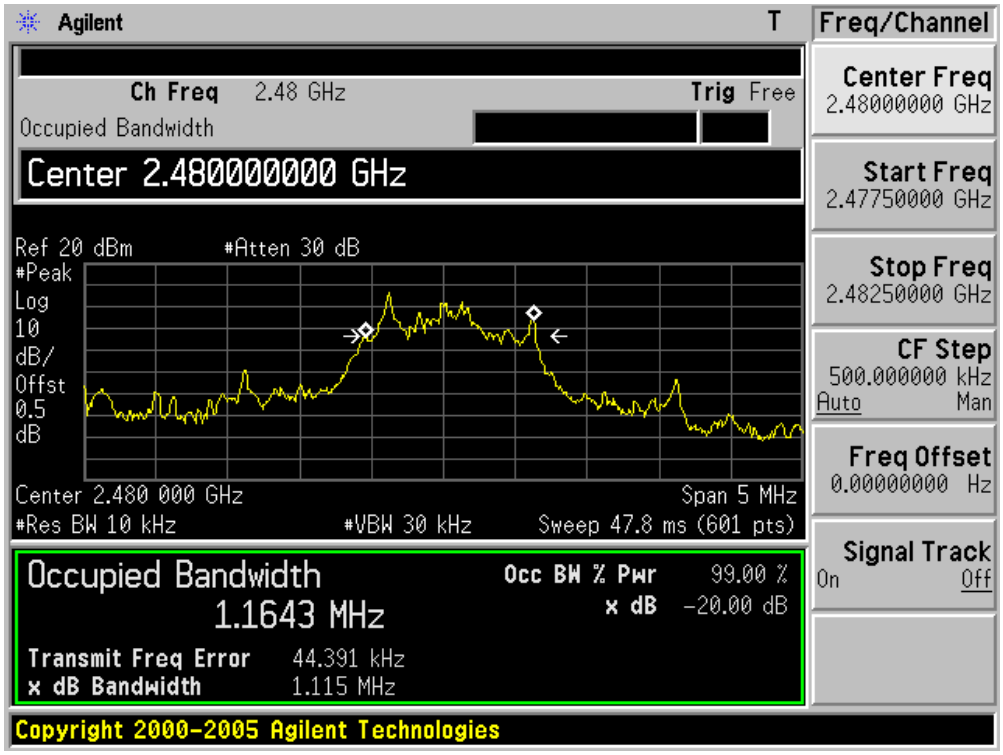
Channel 00 (2402MHz)



Channel 39 (2441MHz)



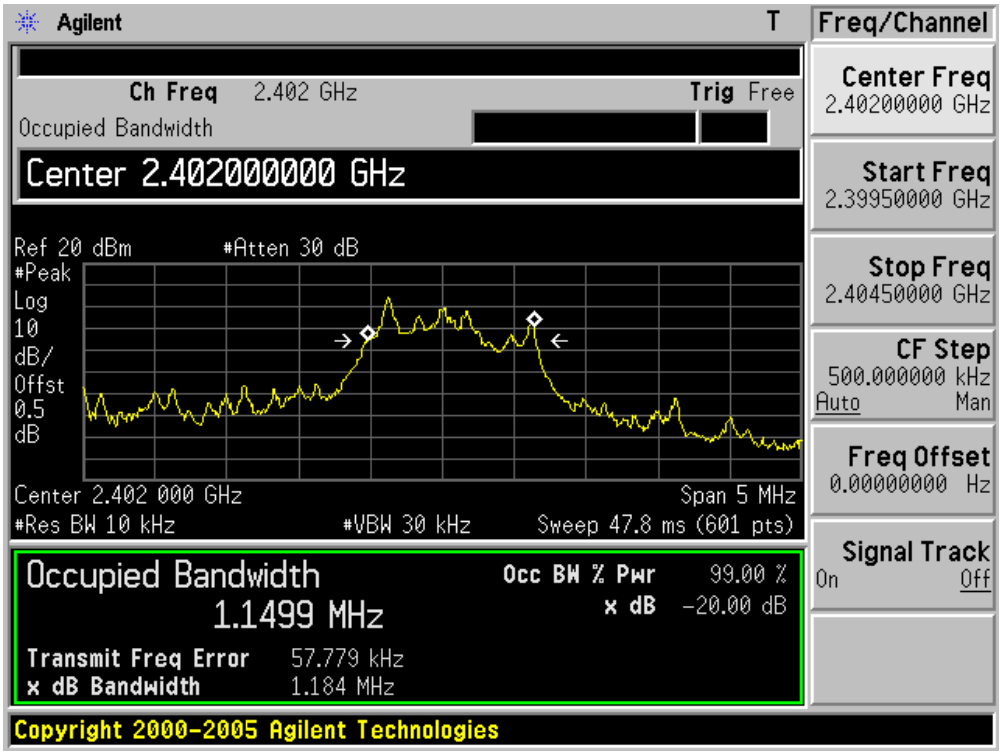
Channel 78 (2480MHz)



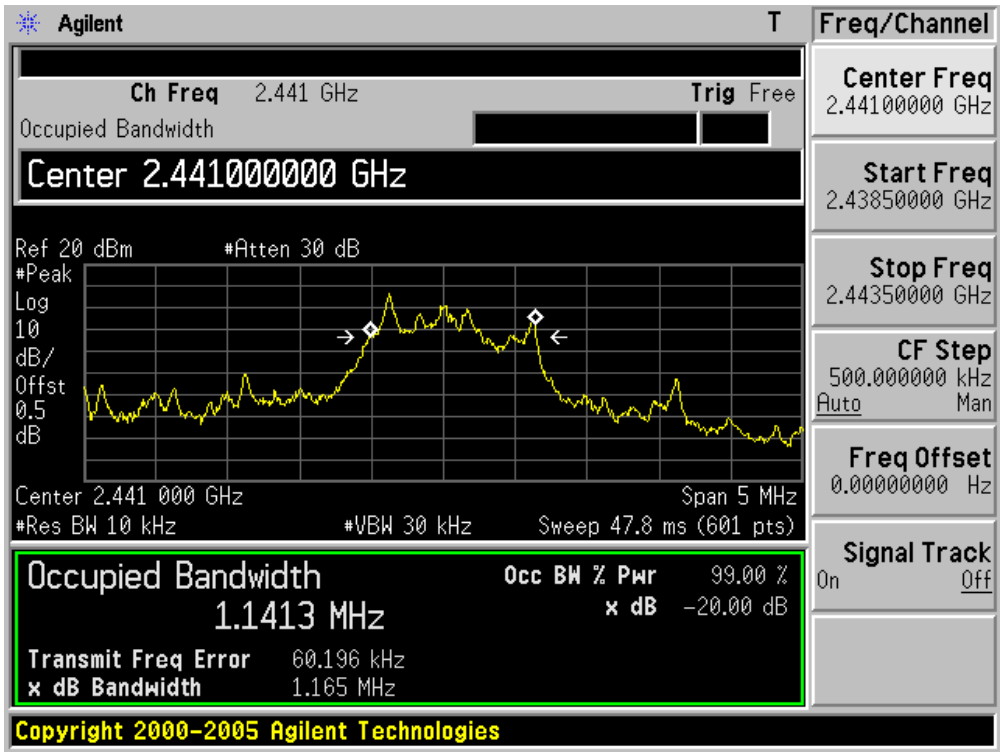
Product	:	Tablet PC
Test Item	:	Occupied Bandwidth
Test Site	:	AC104
Test Mode	:	Mode 3: Transmitter-3Mbps (8DPSK_DH5)

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1184.0	1149.9
39	2441	1165.0	1141.3
78	2480	1155.0	1141.3

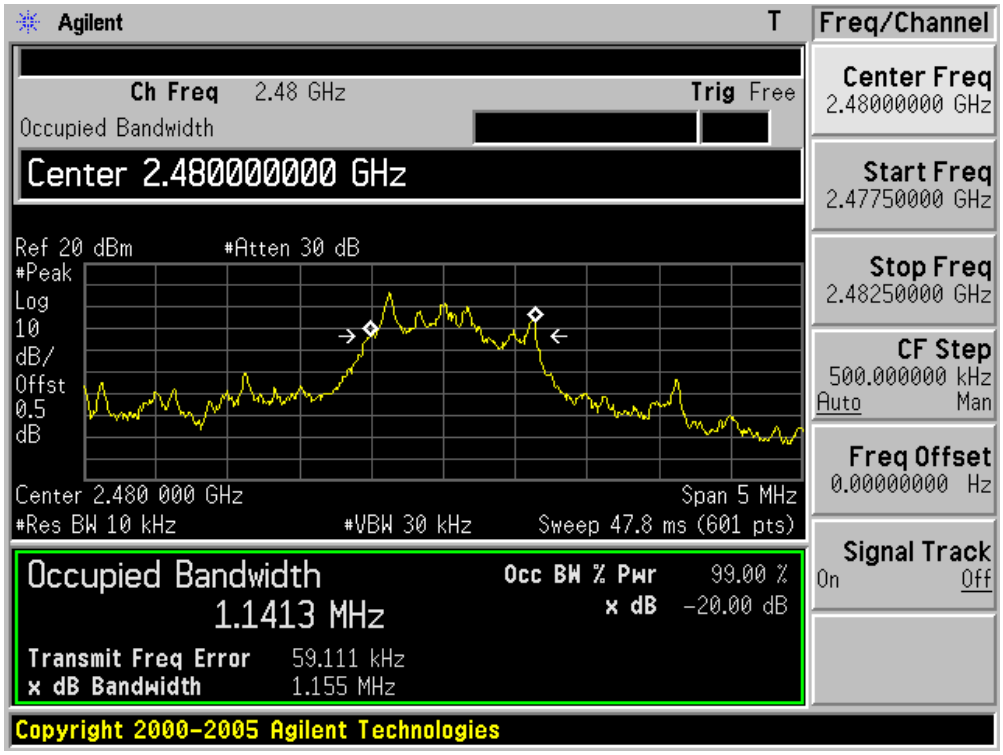
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



7. Frequencies Separation

7.1 Test Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

7.2 Test Procedures

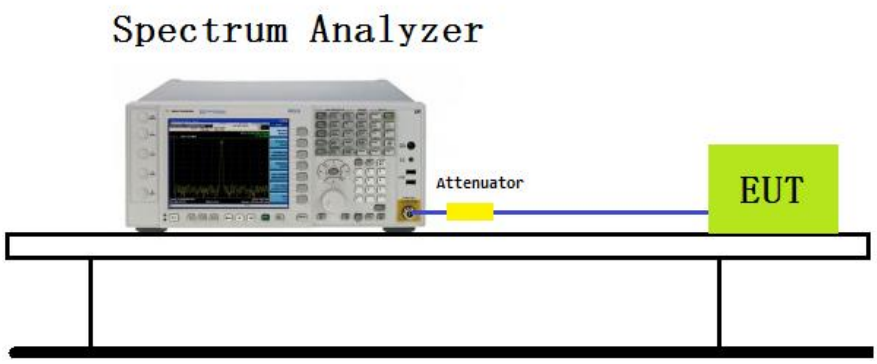
a. The transmitter output was connected to the spectrum analyzer.

b. Set RBW of spectrum analyzer to 30 KHz and VBW to 100 KHz.

c. By using the MaxHold function record the separation of two adjacent channels.

d. Measure the frequency difference of these two adjacent channels.

7.3 Test Setup Layout



7.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	Agilent	E4407B	MY44211883	2014.09.02	2015.09.03

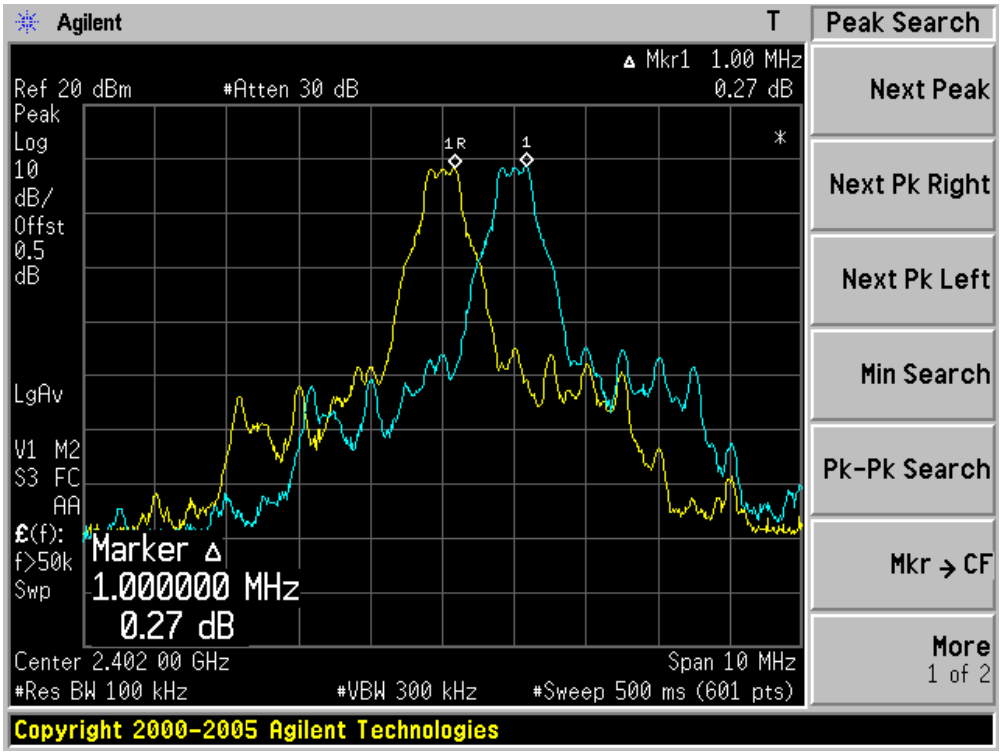
7.5 Test Result and Data

Test Date: Jul 27, 2015	Temperature: 25℃
Atmospheric pressure: 1020 hPa	Humidity: 55%

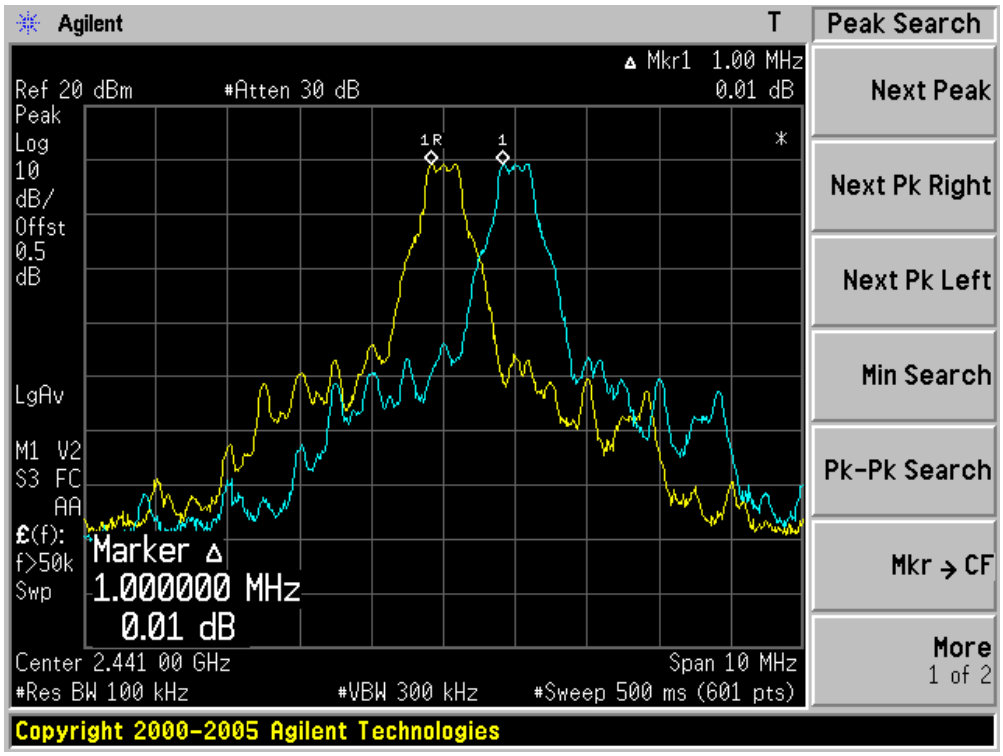
Product	:	Tablet PC
Test Item	:	Carrier Frequency Separation
Test Site	:	AC104
Test Mode	:	Mode 1: Transmitter-1Mbps (GFSK_DH5)

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	>25 kHz or 2/3 of 20 dB BW	Pass
39	2441	1000	>25 kHz or 2/3 of 20 dB BW	Pass
78	2480	1000	>25 kHz or 2/3 of 20 dB BW	Pass

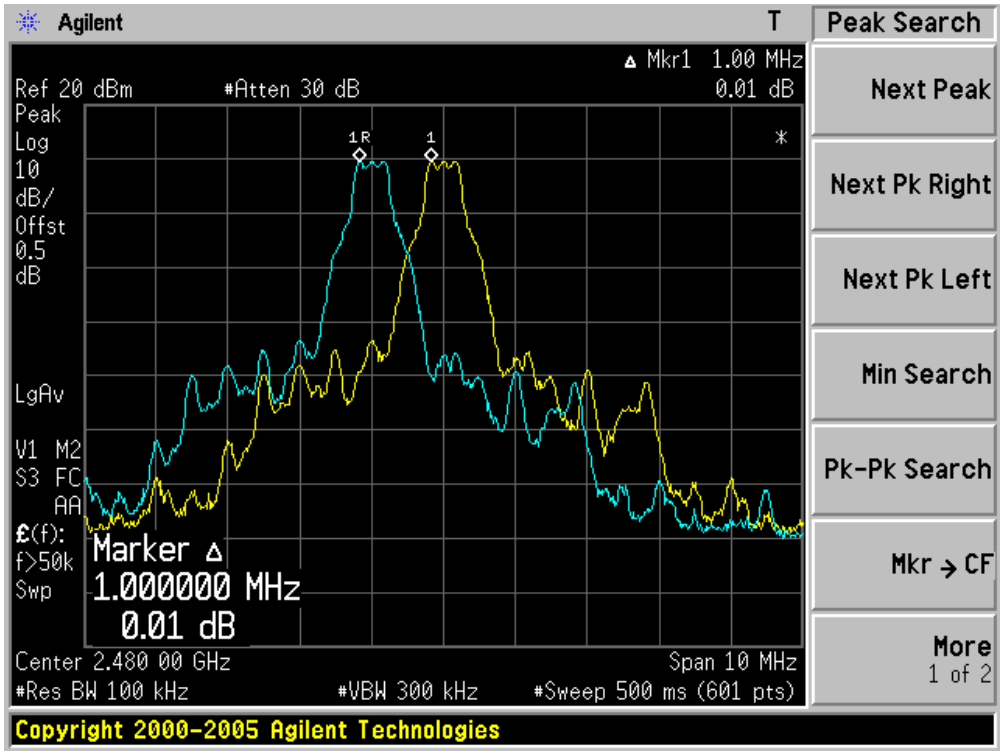
Channel 00 (2402MHz)



Channel 39 (2441MHz)



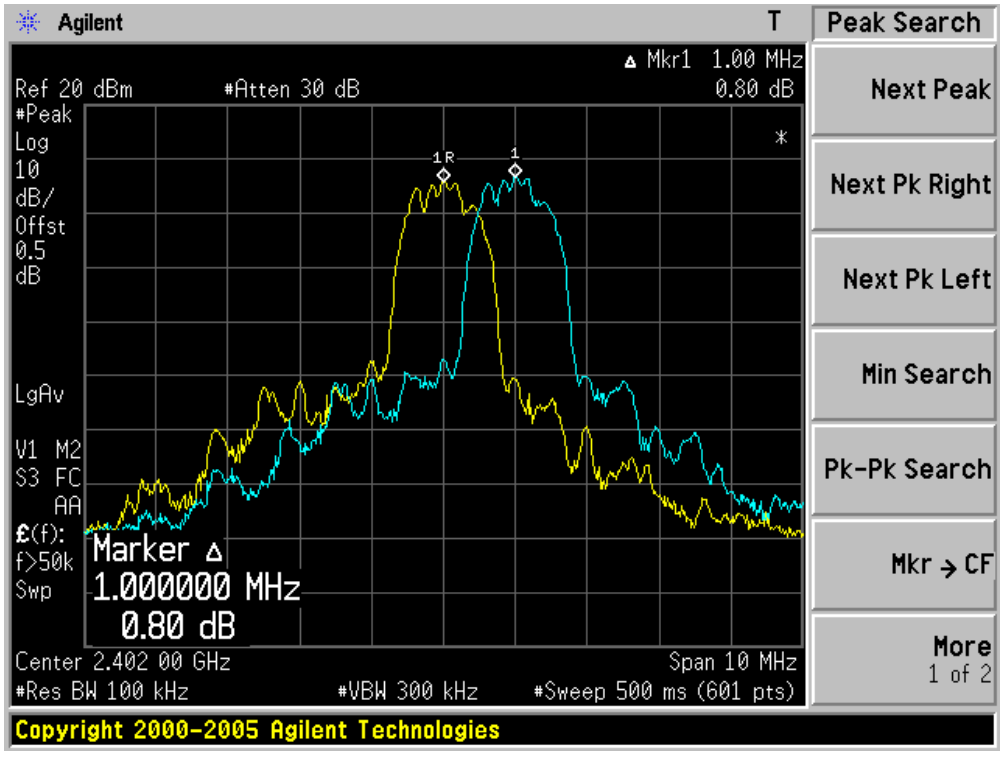
Channel 78 (2480MHz)



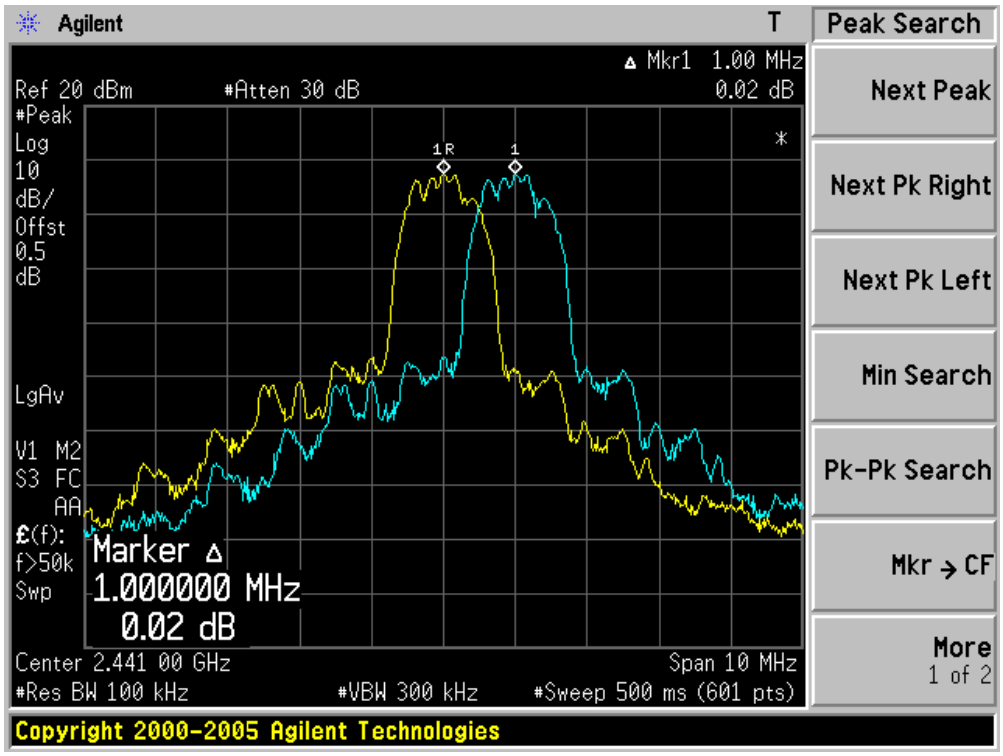
Product	:	Tablet PC
Test Item	:	Carrier Frequency Separation
Test Site	:	AC104
Test Mode	:	Mode 2: Transmitter-2Mbps (Pi/4 DQPSK_DH5)

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	>25 kHz or 2/3 of 20 dB BW	Pass
39	2441	1000	>25 kHz or 2/3 of 20 dB BW	Pass
78	2480	1000	>25 kHz or 2/3 of 20 dB BW	Pass

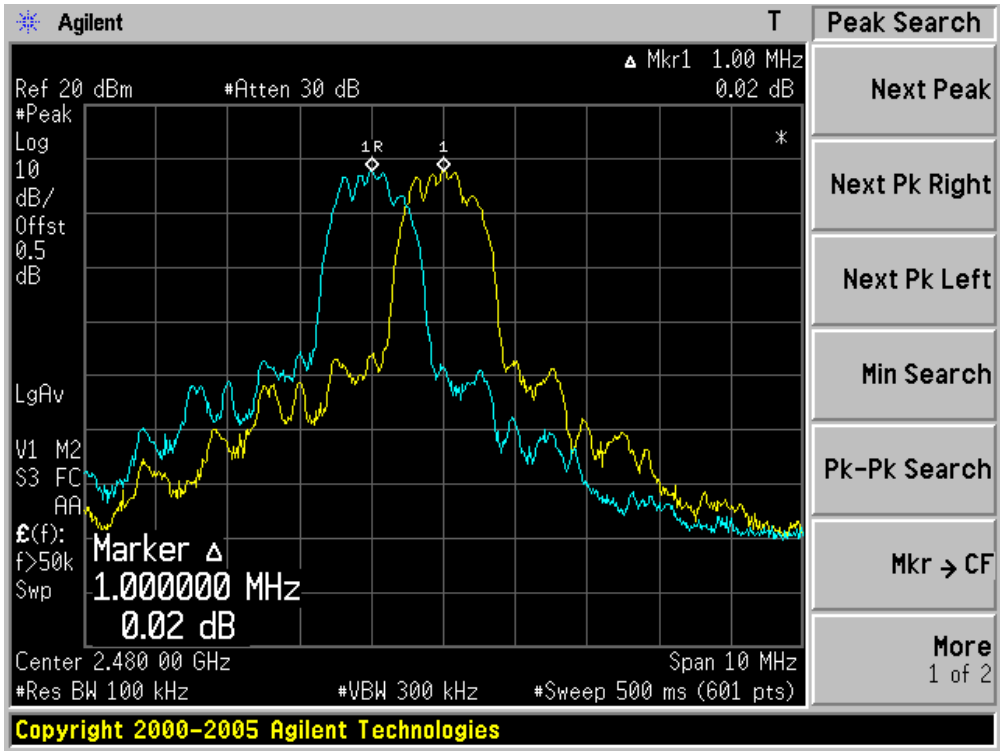
Channel 00 (2402MHz)



Channel 39 (2441MHz)



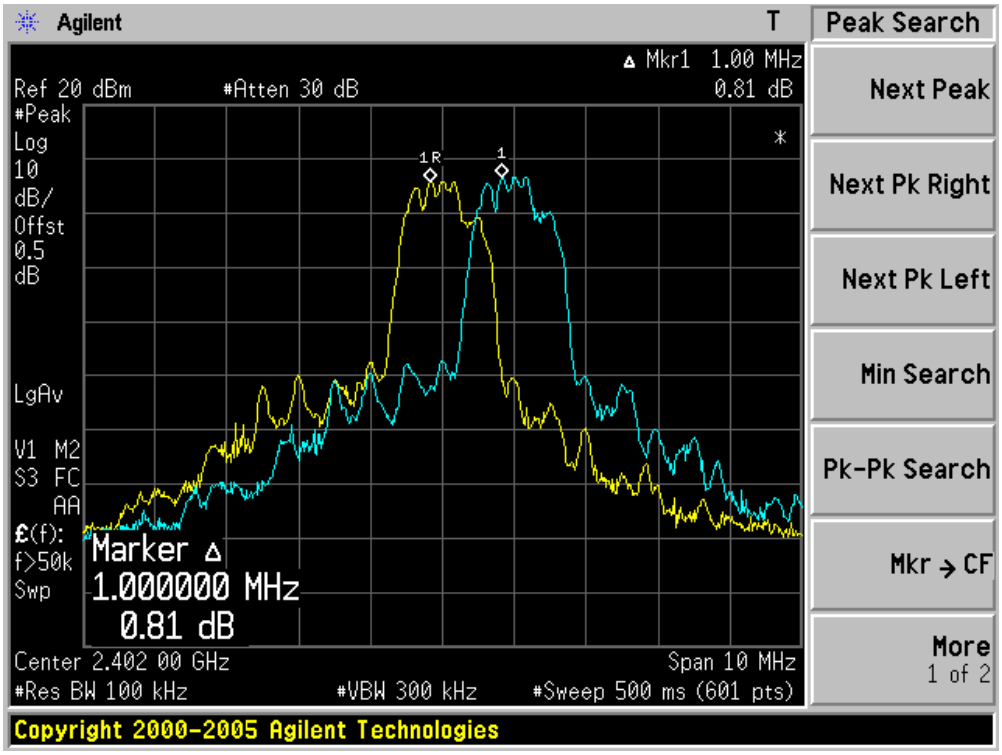
Channel 78 (2480MHz)



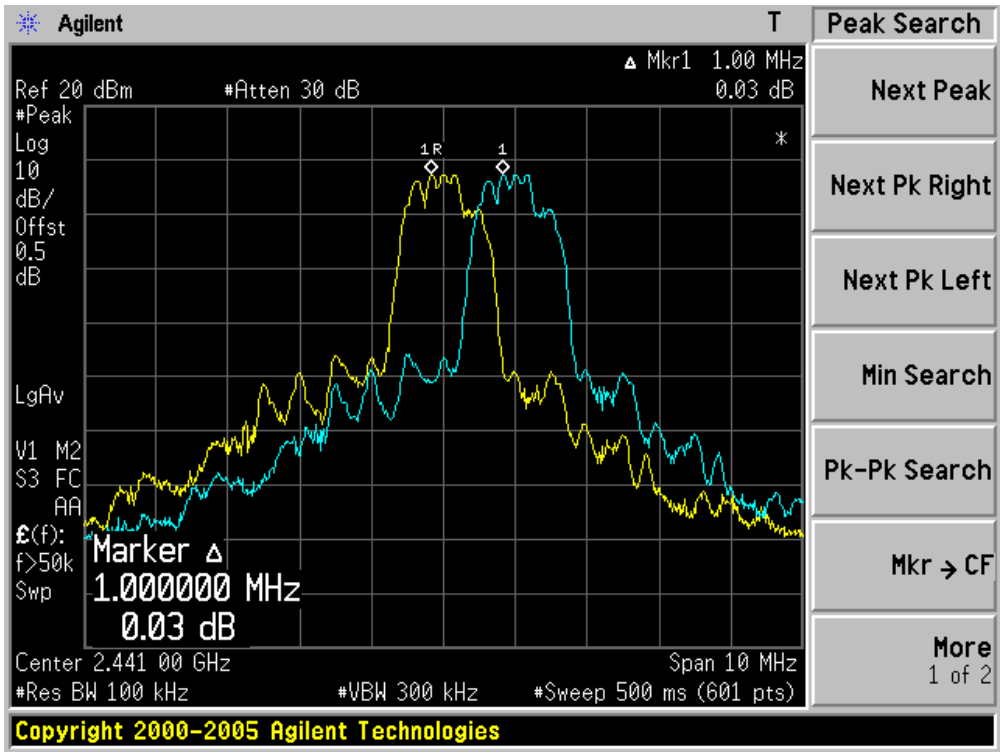
Product	:	Tablet PC
Test Item	:	Carrier Frequency Separation
Test Site	:	AC104
Test Mode	:	Mode 3: Transmitter-3Mbps (8DPSK_DH5)

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	>25 kHz or 2/3 of 20 dB BW	Pass
39	2441	1000	>25 kHz or 2/3 of 20 dB BW	Pass
78	2480	1000	>25 kHz or 2/3 of 20 dB BW	Pass

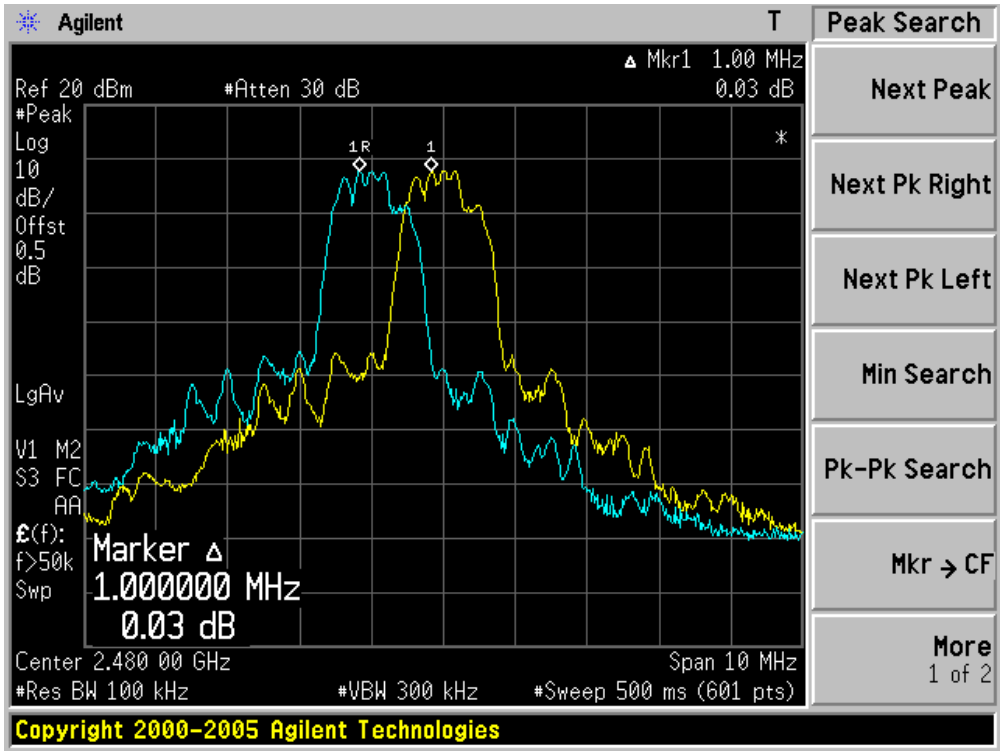
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



8. Dwell Time on each channel

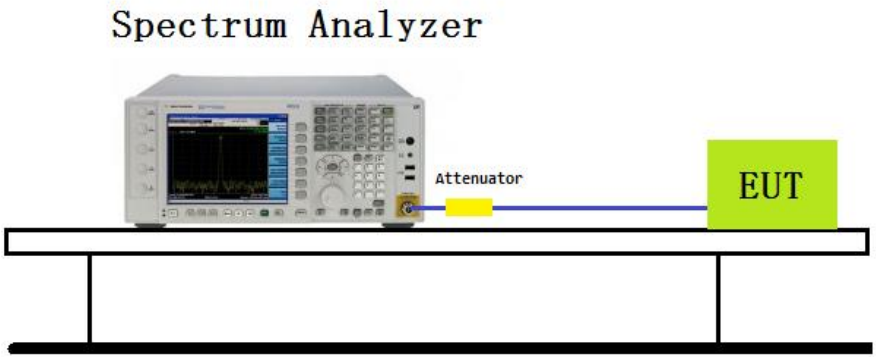
8.1 Test Limit

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

8.2 Test Procedures

1. The transmitter output was connected to the spectrum analyzer.
2. Adjust the center frequency to measure frequency, then set zero span mode.
2. Set RBW of spectrum analyzer to 1 MHz and VBW to 1 MHz.
4. Measure the time duration of one transmission on the measured frequency.

8.3 Test Setup Layout



8.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	Agilent	E4407B	MY44211883	2014.09.02	2015.09.03

8.5 Test Result and Data

Test Date: Jul 27, 2015	Temperature: 25℃
Atmospheric pressure: 1020 hPa	Humidity: 55%

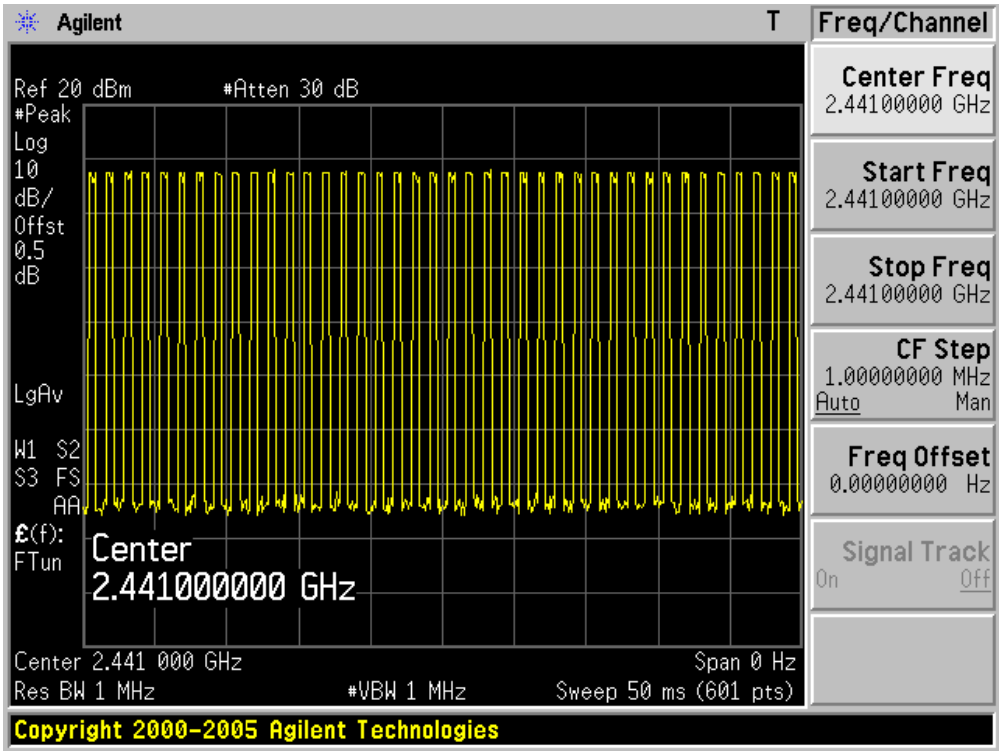
Product	:	Tablet PC
Test Item	:	Time of Occupancy (Dwell Time)
Test Site	:	AC104
Test Mode	:	Transmitter-3Mbps (8DPSK_DH1)

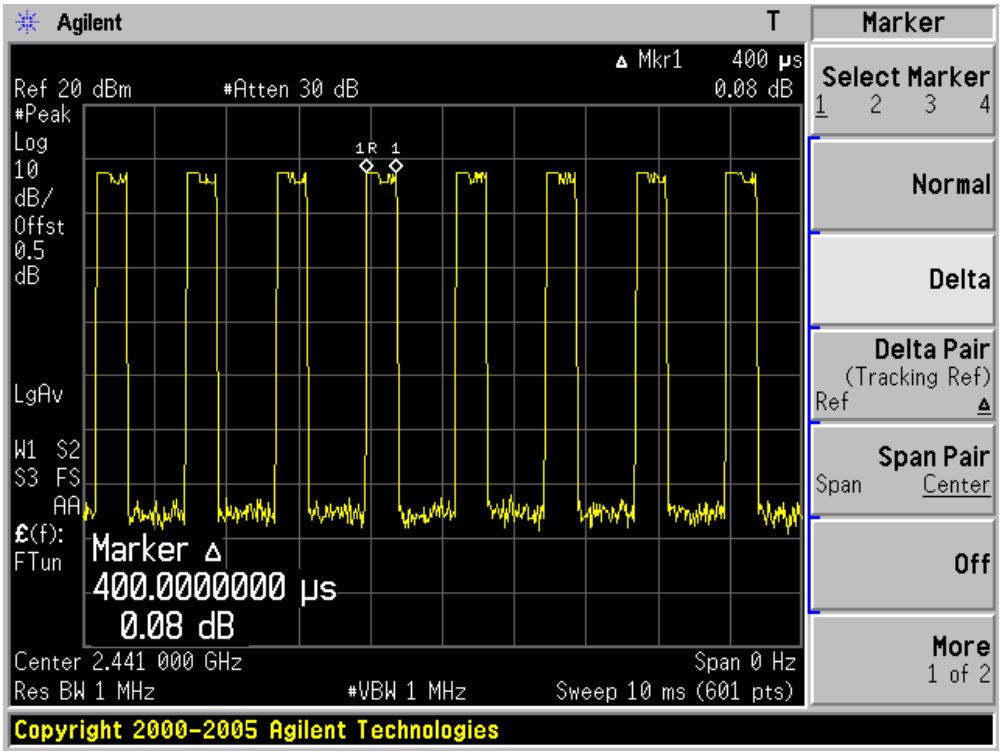
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	128.0	< 400	Pass

Test Time Period: 0.4*79=31.6sec, Hopping Times Within 1sec: 40/50msec = 800 hops/sec.

2441MHz, The Maximum Occupancy Time Within 31.6sec: [(0.4ms*800)/79]*31.6 =128msec

Channel 39 (2441MHz)-(3DH1)




Agilent
T
Marker
Mkr1 400 µs
Ref 20 dBm
#Atten 30 dB
0.08 dB
#Peak
Log
10
dB/
Offst
0.5
dB
1R 1
LgAv
W1 S2
S3 FS
AA
£(f):
FTun
Marker Δ
400.0000000 µs
0.08 dB
Center 2.441 000 GHz
Span 0 Hz
Res BW 1 MHz
#VBW 1 MHz
Sweep 10 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref Δ
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2005 Agilent Technologies

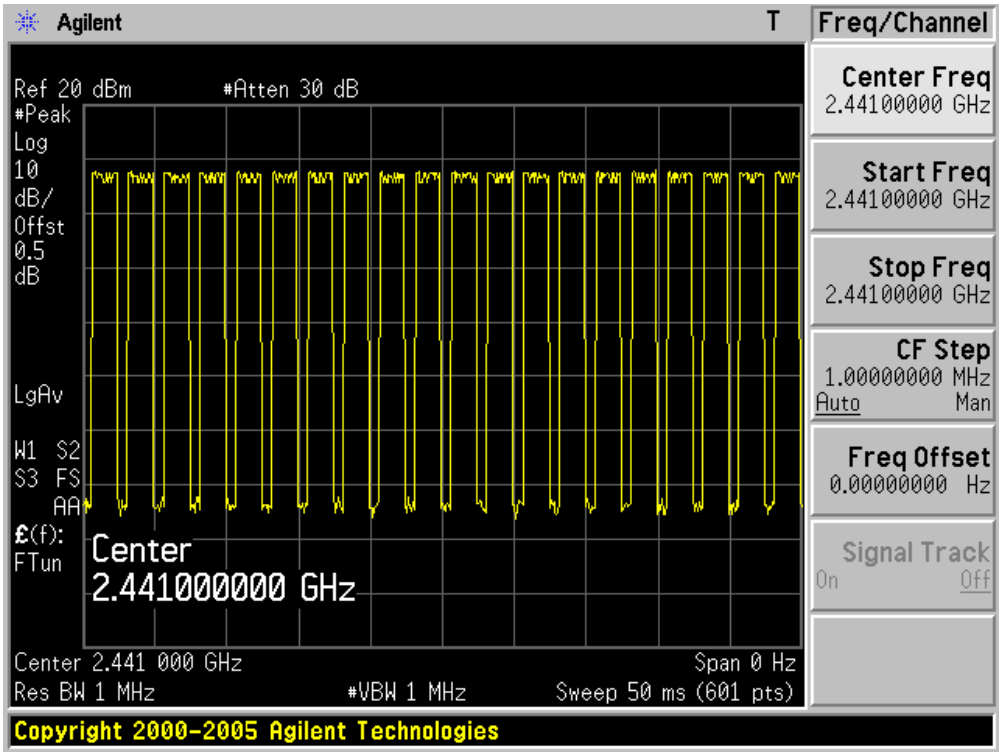
Product	:	Tablet PC
Test Item	:	Time of Occupancy (Dwell Time)
Test Site	:	AC104
Test Mode	:	Transmitter-3Mbps (8DPSK_DH3)

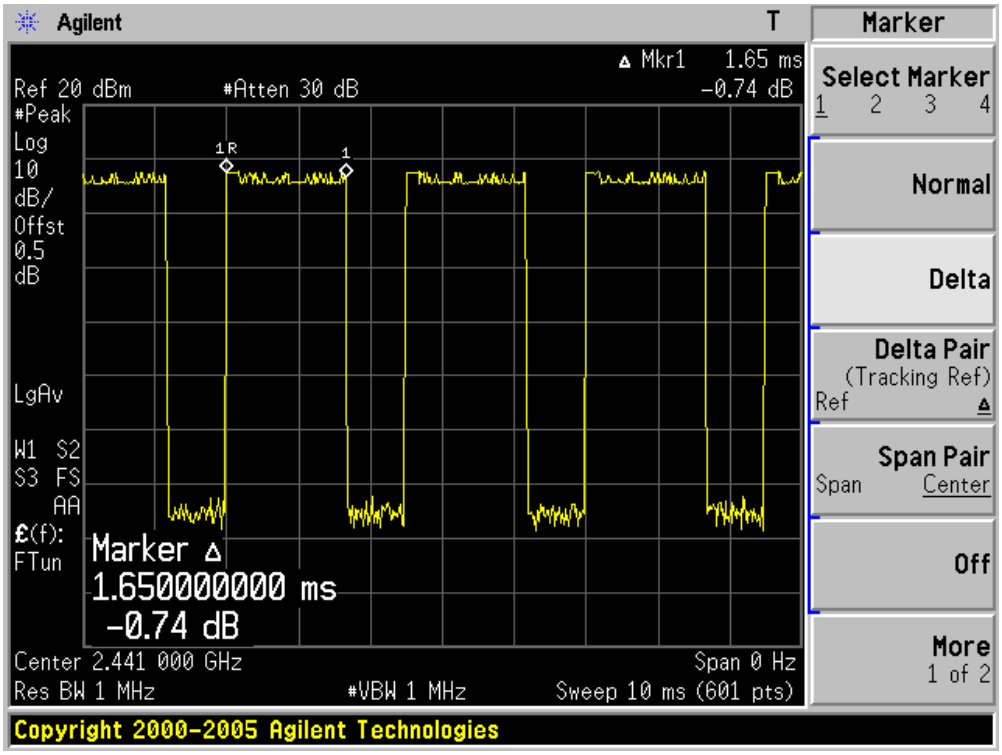
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	264.0	< 400	Pass

Test Time Period: 0.4*79=31.6sec, Hopping Times Within 1sec: 20/50msec=400hops/sec.

2441MHz, The Maximum Occupancy Time Within 31.6sec: [(1.65ms*400)/79]*31.6=264.0msec

Channel 39 (2441MHz) - (3DH3)




Agilent
T
Marker
Mkr1 1.65 ms
Ref 20 dBm
#Atten 30 dB
-0.74 dB
#Peak
Log
10
dB/
Offst
0.5
dB
1R
1
LgAv
W1 S2
S3 FS
AA
£(f):
FTun
Marker Δ
1.650000000 ms
-0.74 dB
Center 2.441 000 GHz
Span 0 Hz
Res BW 1 MHz
#VBW 1 MHz
Sweep 10 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref Δ
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2005 Agilent Technologies

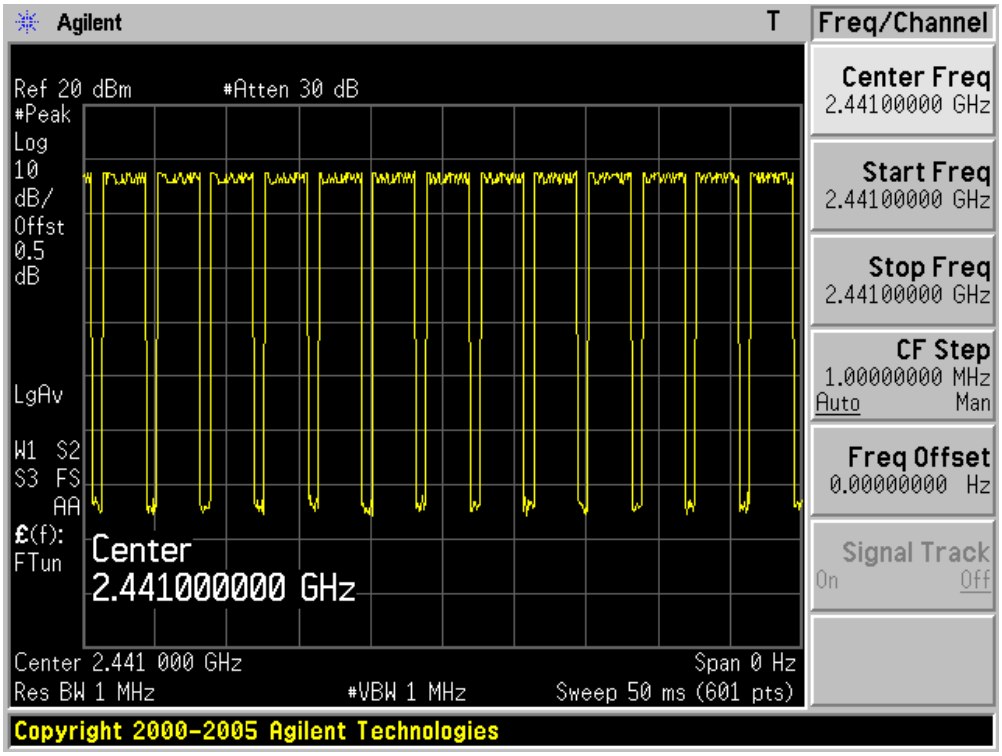
Product	:	Tablet PC
Test Item	:	Time of Occupancy (Dwell Time)
Test Site	:	AC104
Test Mode	:	Transmitter-3Mbps (8DPSK_DH5)

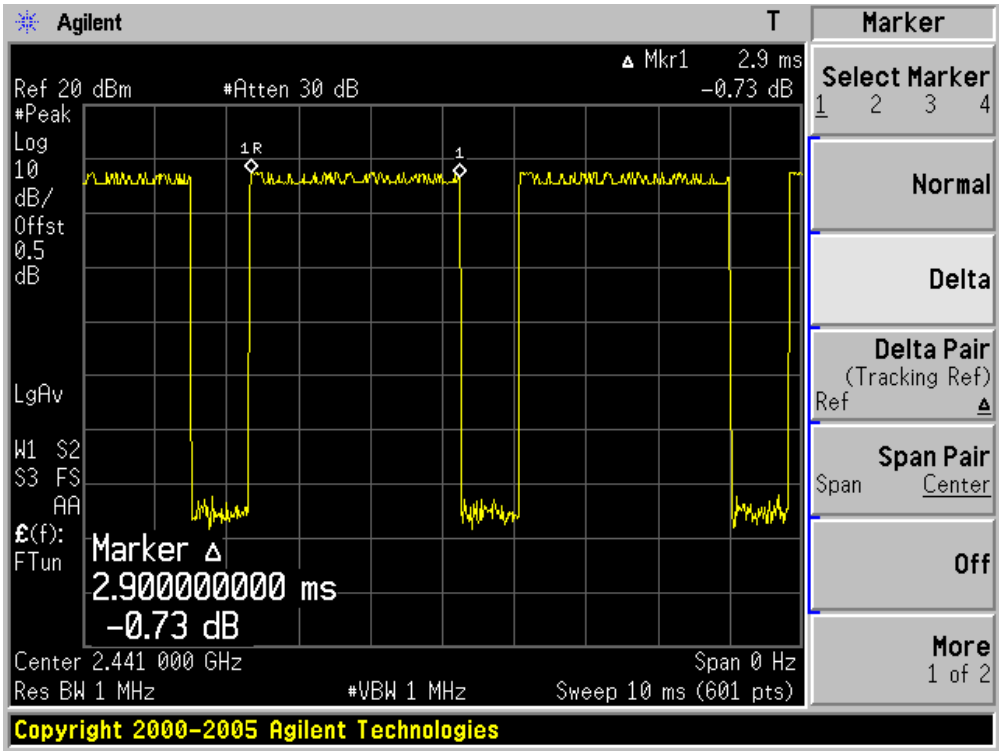
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	301.6	< 400	Pass

Test Time Period: 0.4*79=31.6sec, Hopping Times Within 1sec: 13/50msec=260 hops/sec.

2441MHz, The Maximum Occupancy Time Within 31.6sec: [(2.9ms*260)/79]*31.6= 301.6msec

Channel 39 (2441MHz) - (3DH5)




Agilent
T
Marker
Mkr1 2.9 ms
Ref 20 dBm
#Atten 30 dB
-0.73 dB
#Peak
Log
10
dB/
Offst
0.5
dB
1R
1
LgAv
W1 S2
S3 FS
AA
£(f):
FTun
Marker Δ
2.900000000 ms
-0.73 dB
Center 2.441 000 GHz
Span 0 Hz
Res BW 1 MHz
#VBW 1 MHz
Sweep 10 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref Δ
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2005 Agilent Technologies

9. Number of Hopping Channels

9.1 Test Limit

Frequency hopping systems in the 2400 ~ 2483.5 MHz band shall use at least 15 channels.

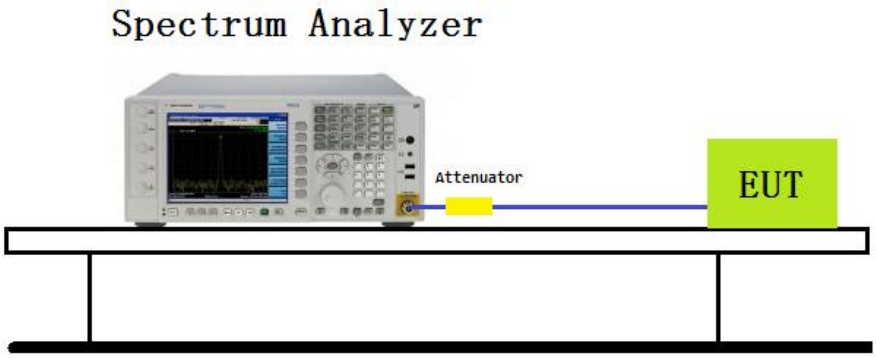
9.2 Test Procedures

a. The transmitter output was connected to the spectrum analyzer.

b. Set RBW of spectrum analyzer to 100 KHz and VBW to 300 KHz.

c. Set the MaxHold function, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been record.

9.3 Test Setup Layout



9.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	Agilent	E4407B	MY44211883	2014.09.02	2015.09.03

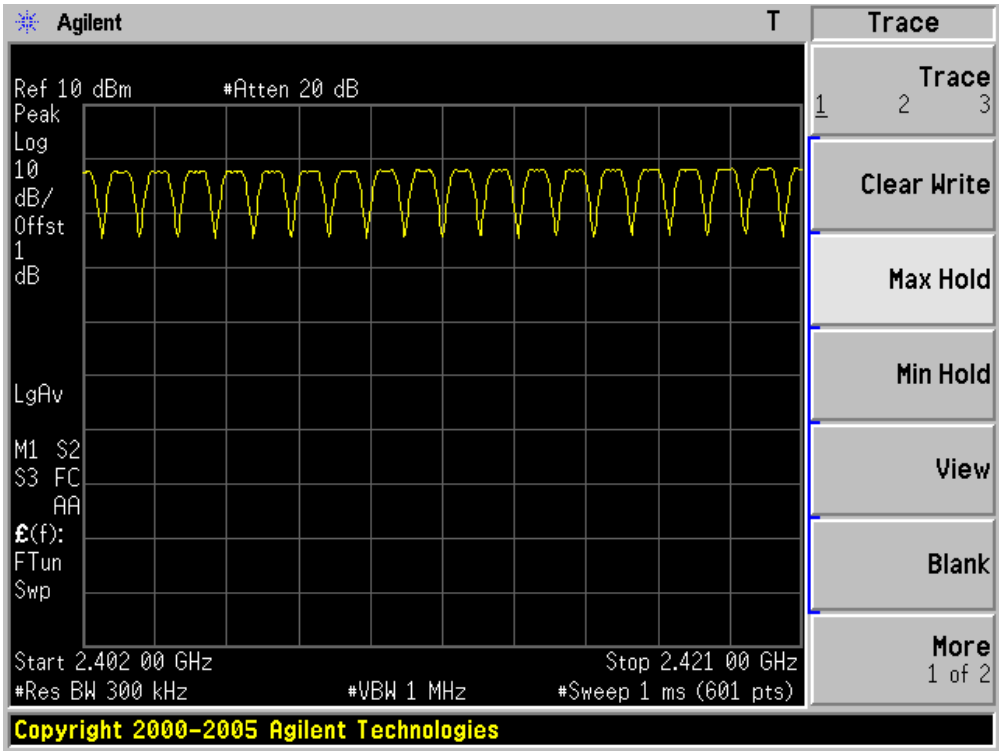
9.5 Test Result and Data

Test Date: Jun 27, 2015	Temperature: 25℃
Atmospheric pressure: 1020 hPa	Humidity: 55%

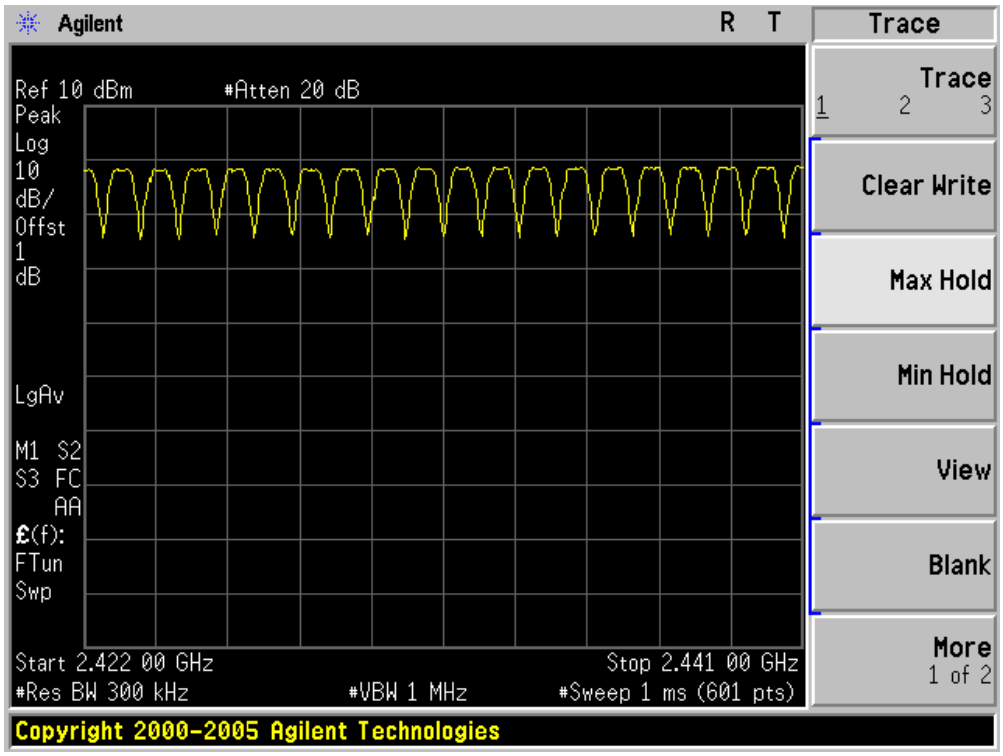
Product	:	Tablet PC
Test Item	:	Number of Hopping Frequencies
Test Site	:	AC104
Test Mode	:	Mode 1: Transmitter-1Mbps (GFSK_DH5)

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

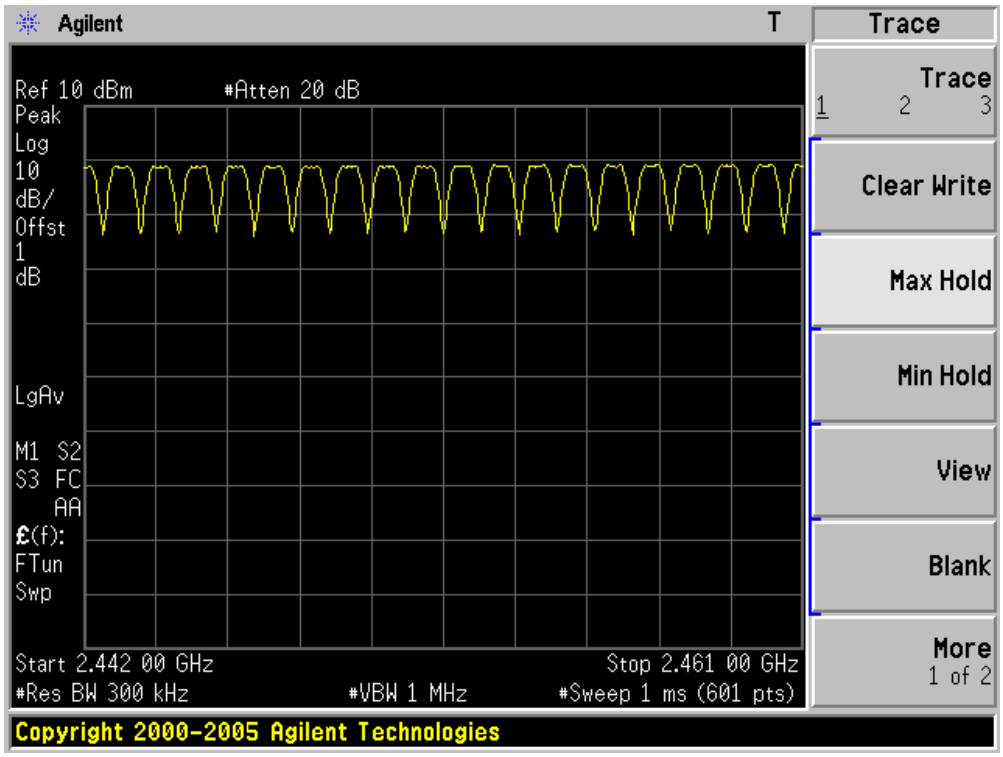
2402 - 2421 MHz



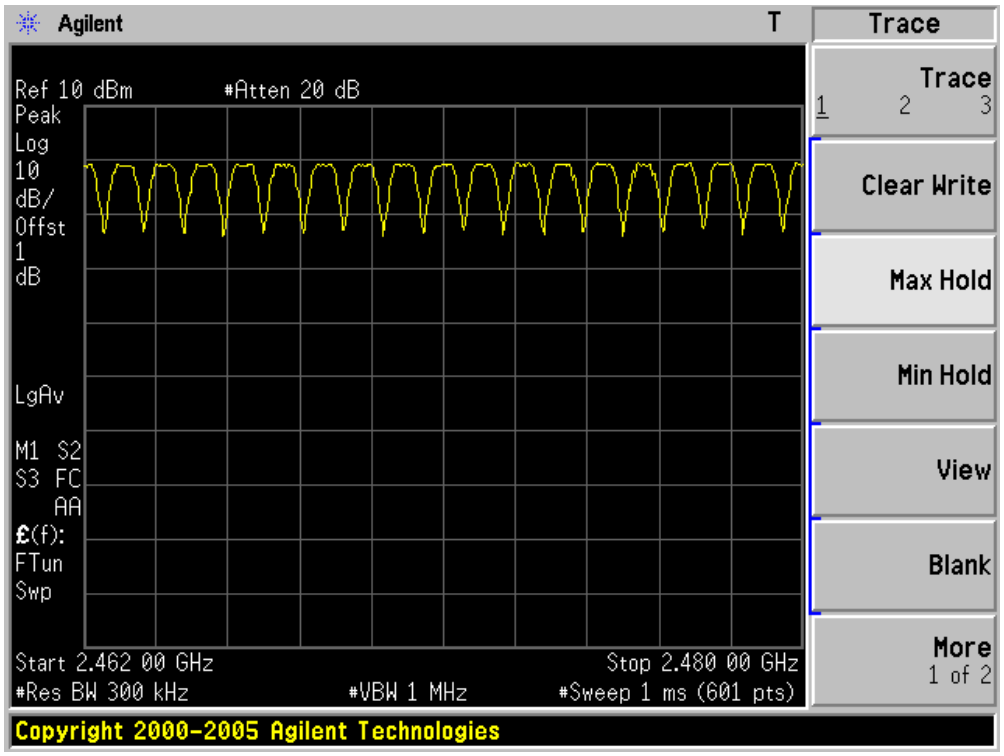
2422 - 2441 MHz



2442 - 2461 MHz



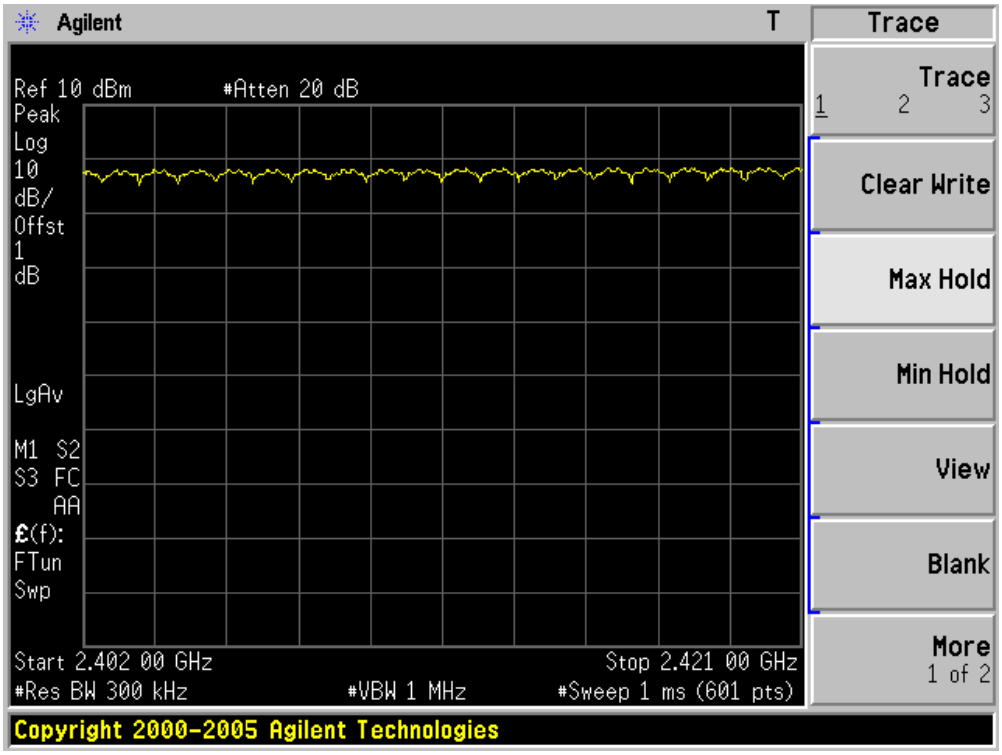
2462 - 2480 MHz



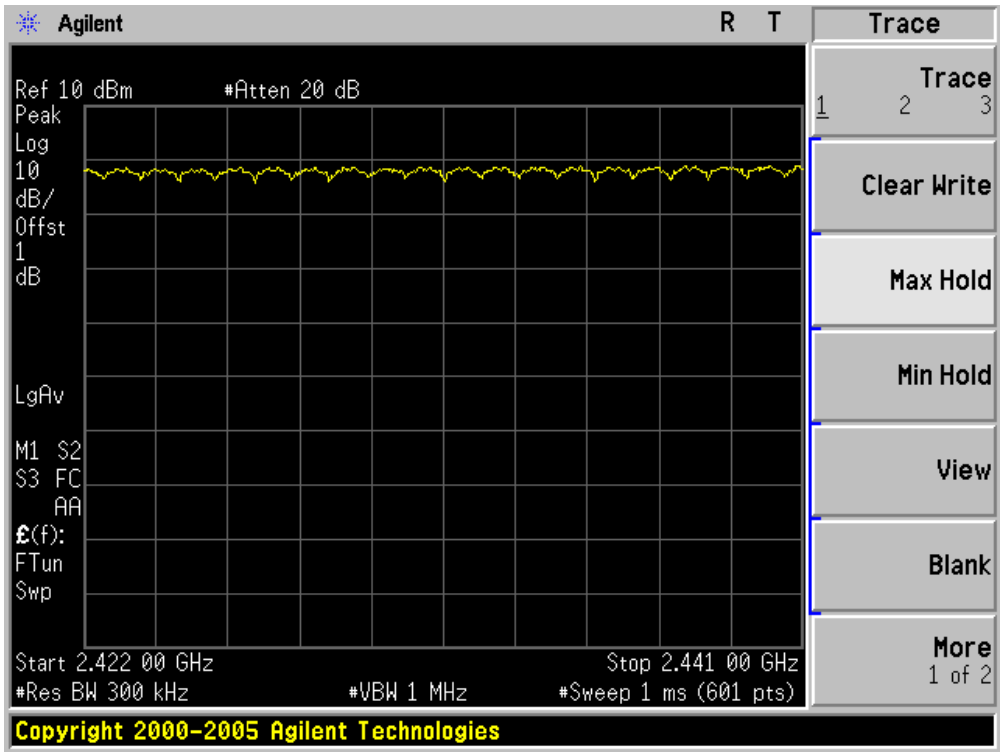
Product	:	Tablet PC
Test Item	:	Number of Hopping Frequencies
Test Site	:	AC104
Test Mode	:	Mode 2: Transmitter-2Mbps (Pi/4 DQPSK_DH5)

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

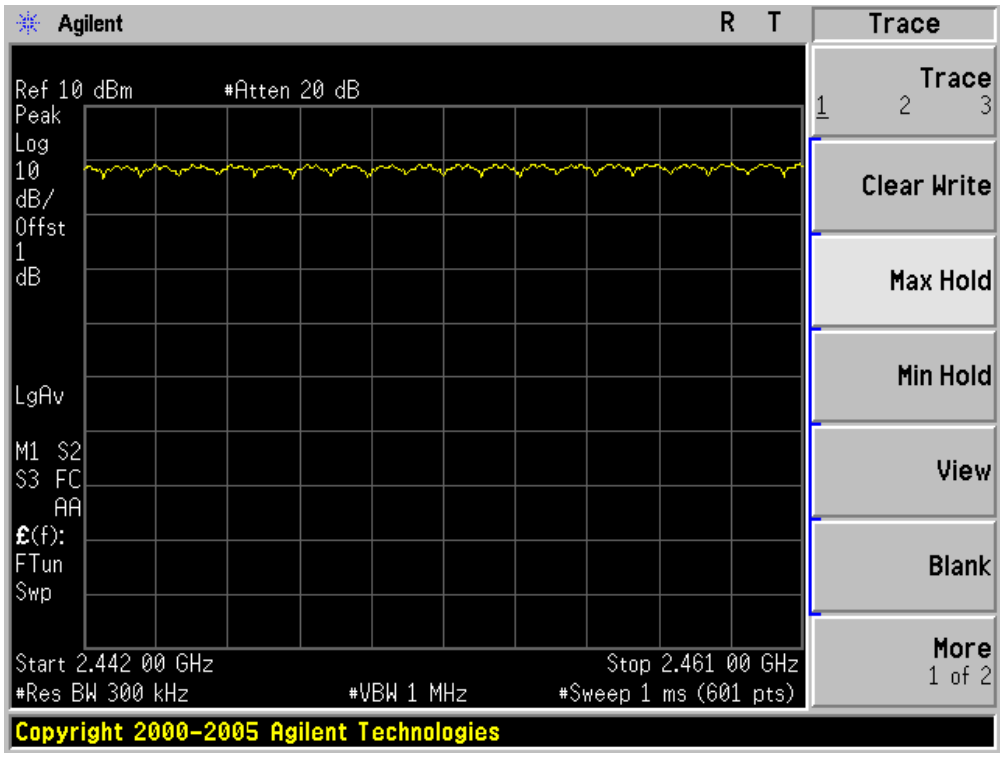
2402 - 2421 MHz



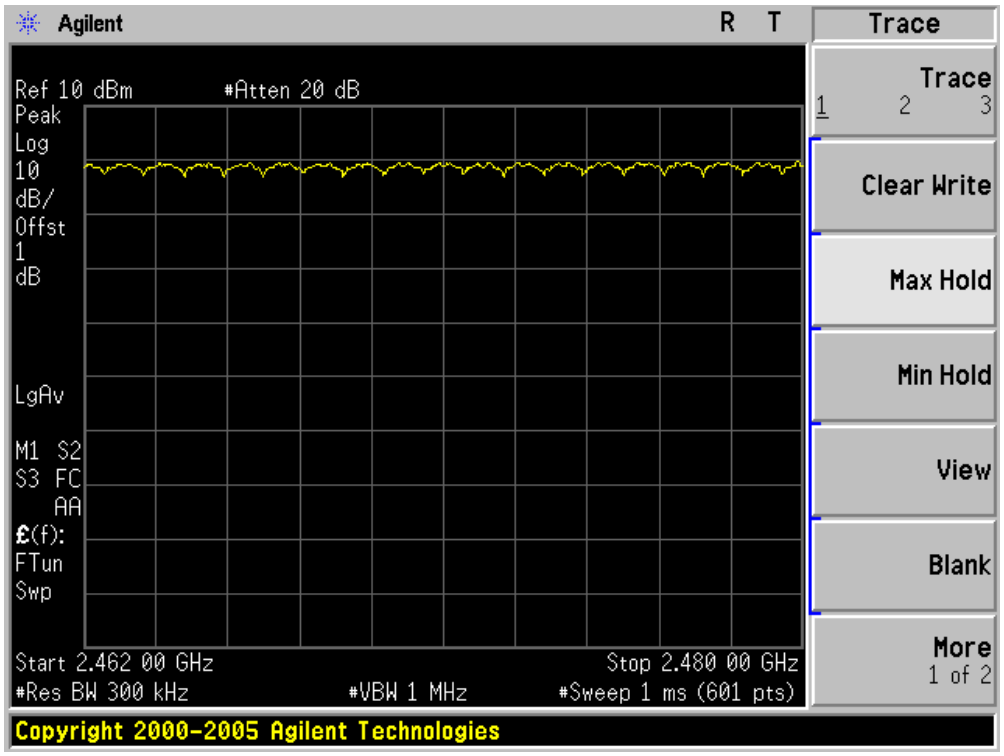
2422 - 2441 MHz



2442 - 2461 MHz



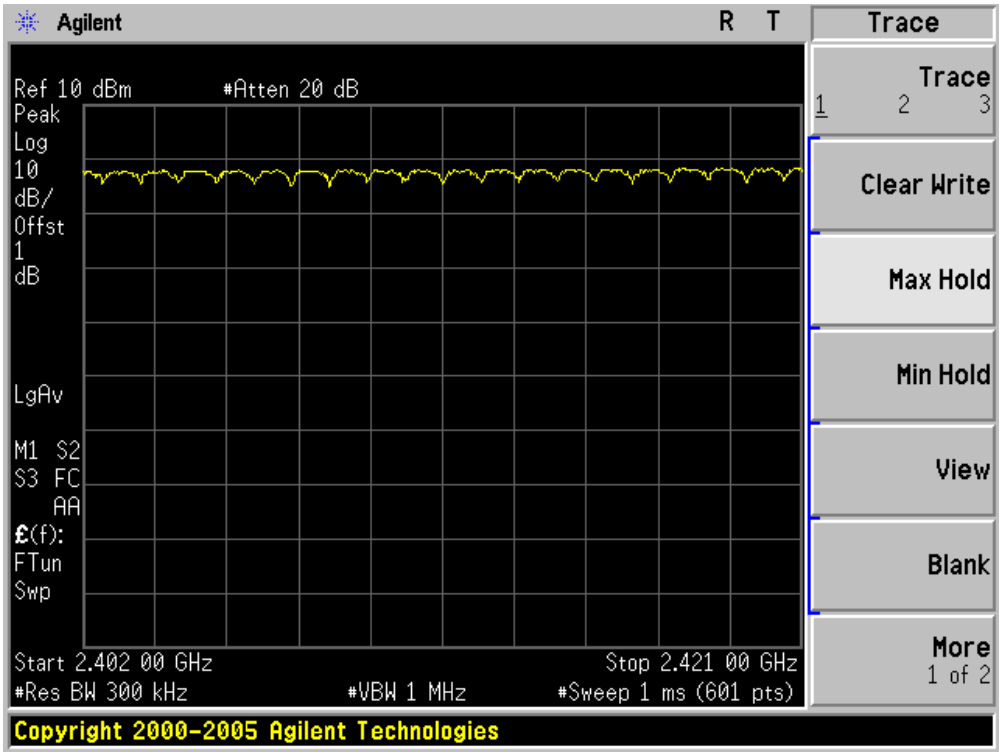
2462 - 2480 MHz



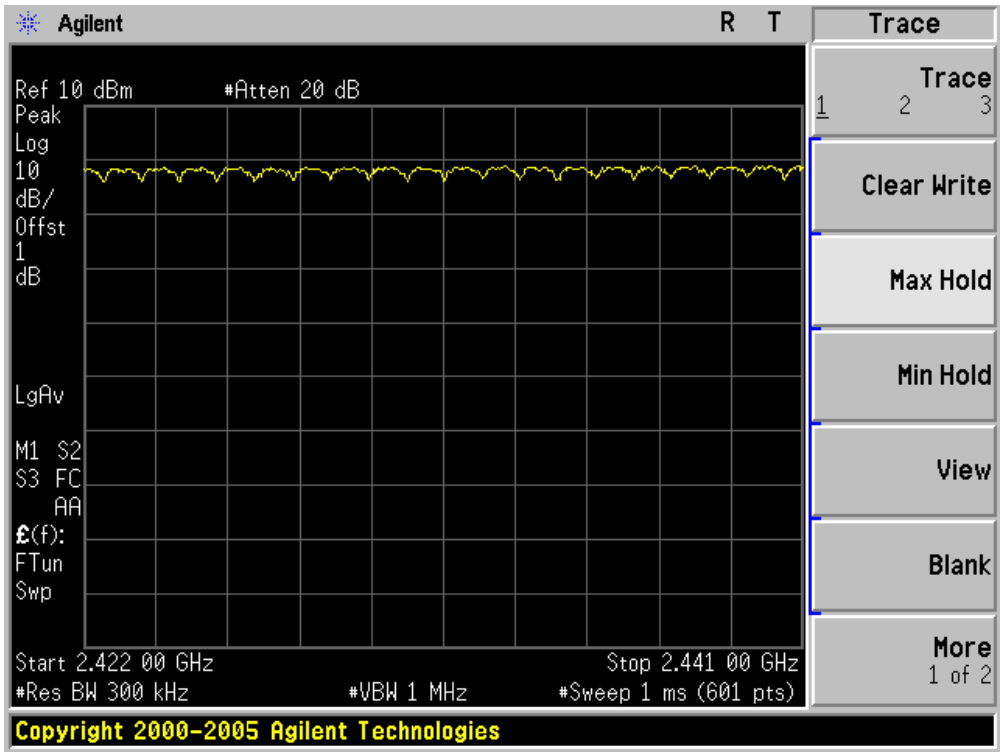
Product	:	Tablet PC
Test Item	:	Number of Hopping Frequencies
Test Site	:	AC104
Test Mode	:	Mode 3: Transmitter-3Mbps (8DPSK_DH5)

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

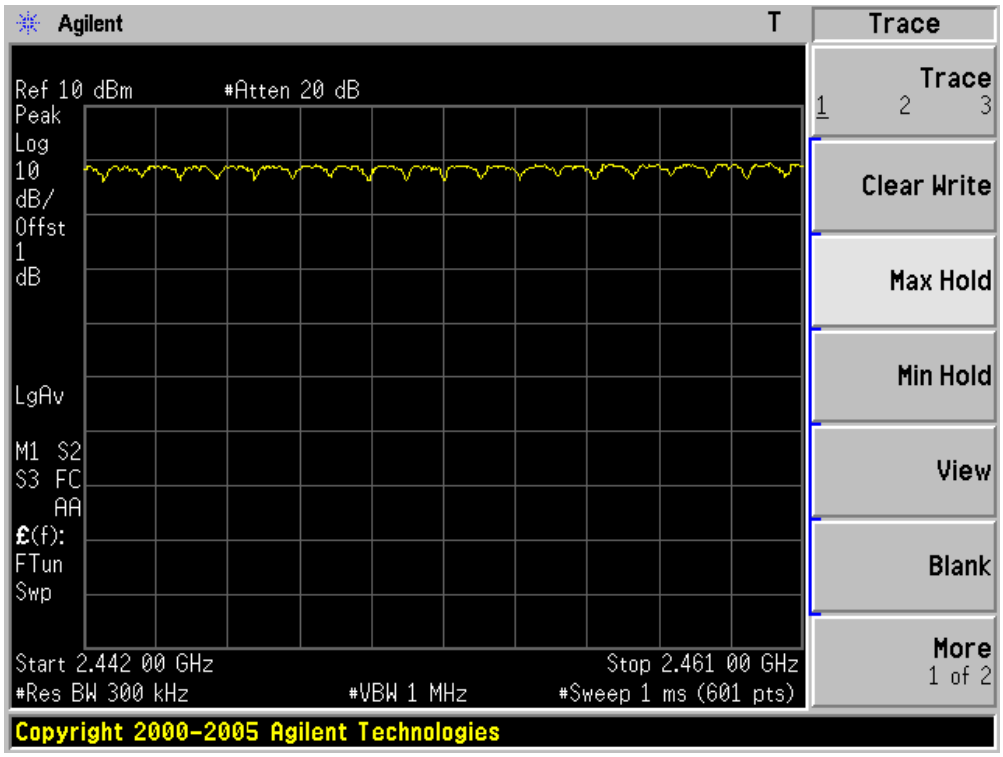
2402 - 2421 MHz



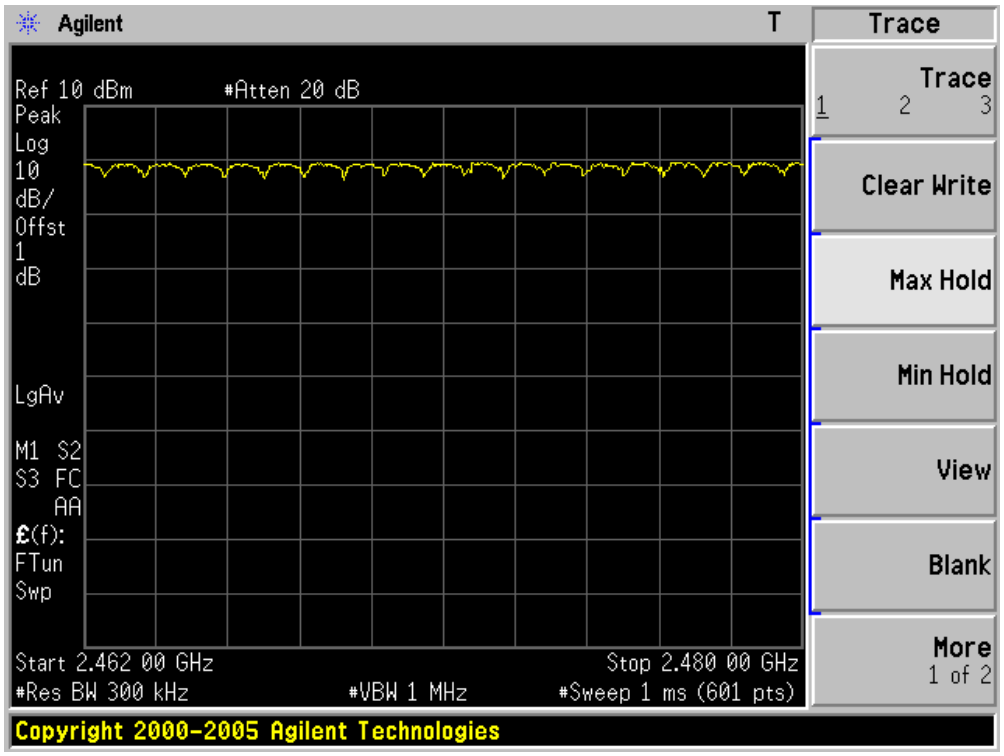
2422 - 2441 MHz



2442 - 2461 MHz



2462 - 2480 MHz



10. Maximum Peak Output Power

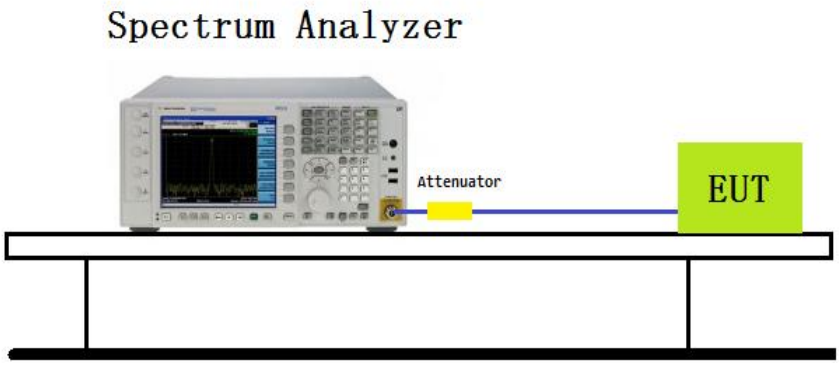
10.1 Test Limit

The Maximum Peak Output Power Measurement is 30dBm.

10.2 Test Procedures

The antenna port（RF output）of the EUT was connected to the input（RF input）of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

10.3 Test Setup Layout



10.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	Agilent	E4407B	MY44211883	2014.09.02	2015.09.03

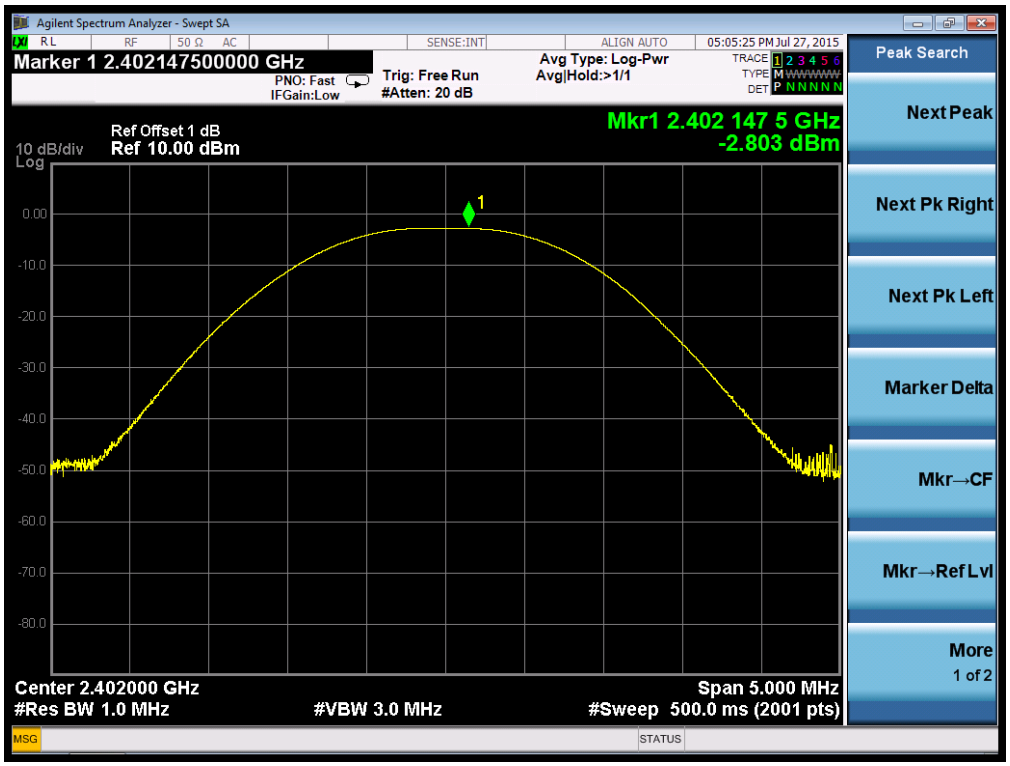
10.5 Test Result and Data

Test Date: Jul 27, 2015	Temperature: 25℃
Atmospheric pressure: 1020 hPa	Humidity: 55%

Product	:	Tablet PC
Test Item	:	Power Output
Test Mode	:	Mode 1: Transmitter-1Mbps (GFSK_DH5)

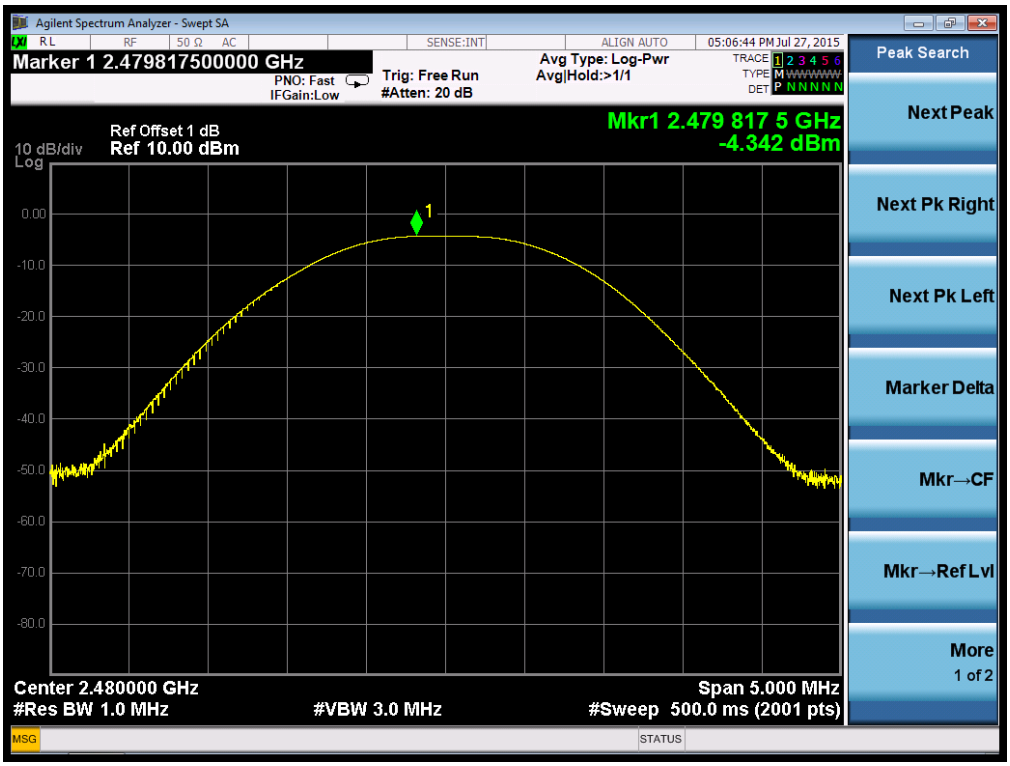
Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
0	2402	-2.803	30.00	Pass
39	2441	-2.973	30.00	Pass
78	2480	-4.342	30.00	Pass

DH5 2402MHz



DH5 2441MHz

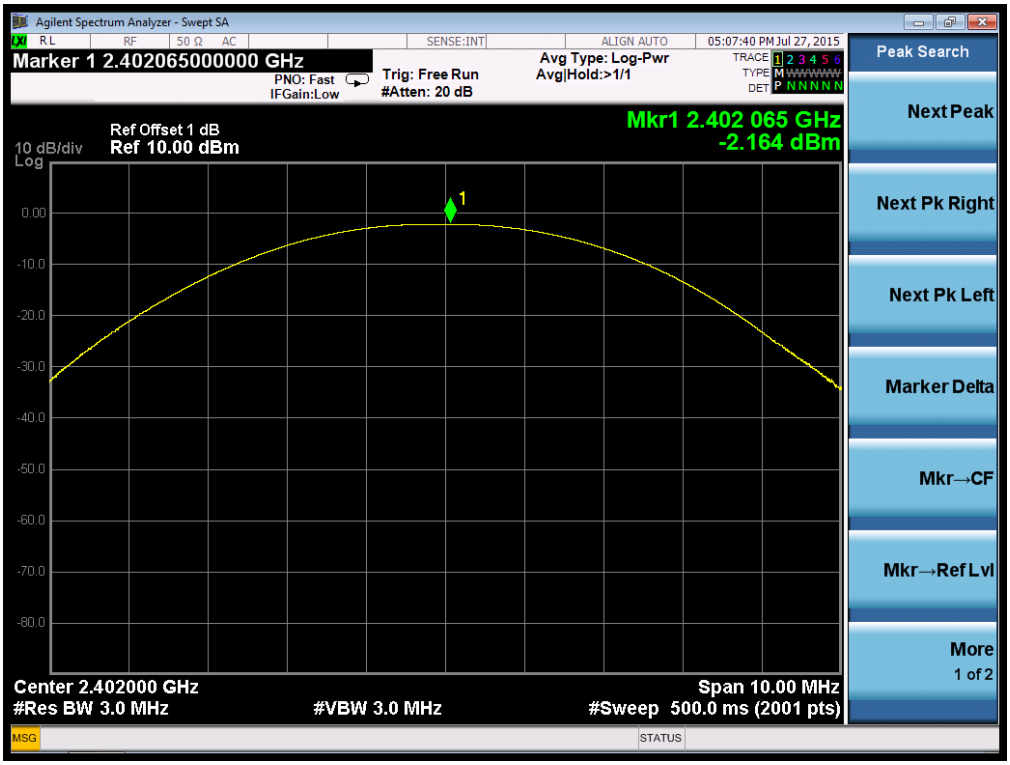
DH5 2480MHz



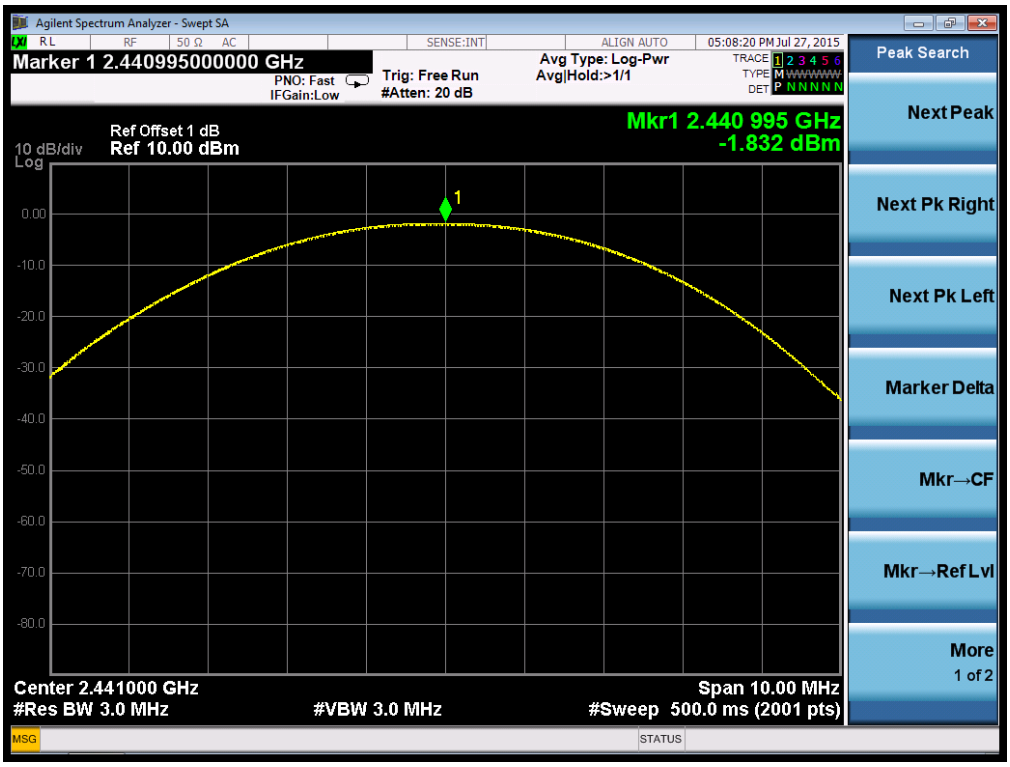
Product	:	Tablet PC
Test Item	:	Power Output
Test Mode	:	Mode 2: Transmitter-2Mbps (Pi/4 DQPSK_DH5)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
0	2402	-2.164	30.00	Pass
39	2441	-1.832	30.00	Pass
78	2480	-3.003	30.00	Pass

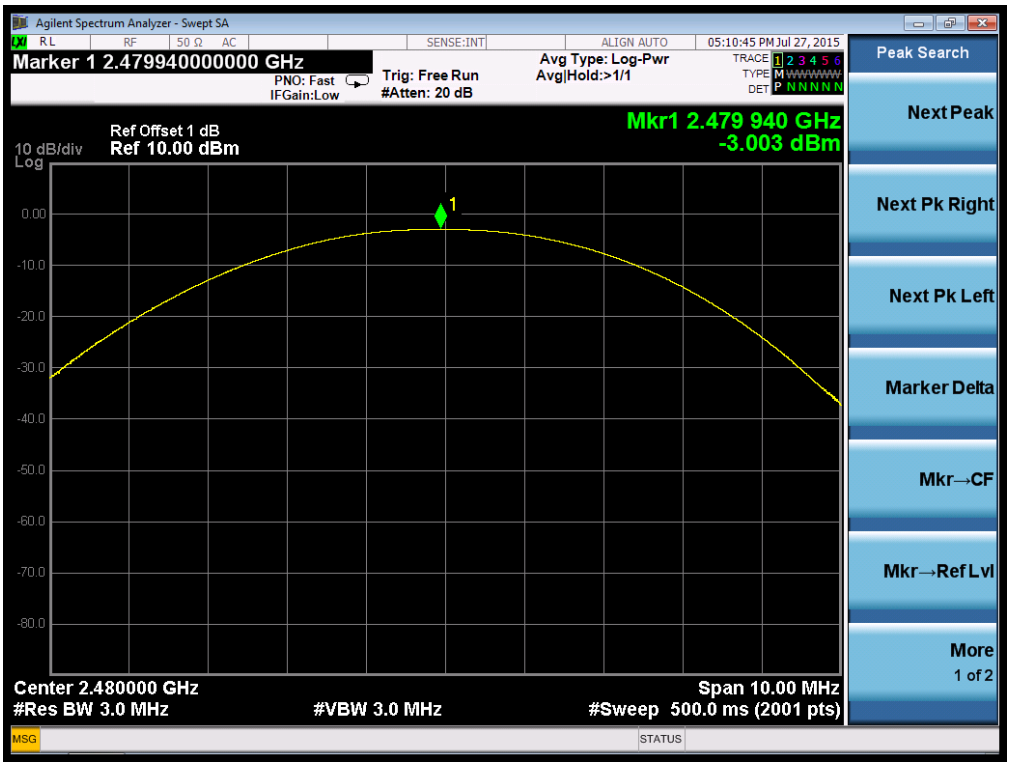
2DH5 2402MHz



2DH5 2441MHz



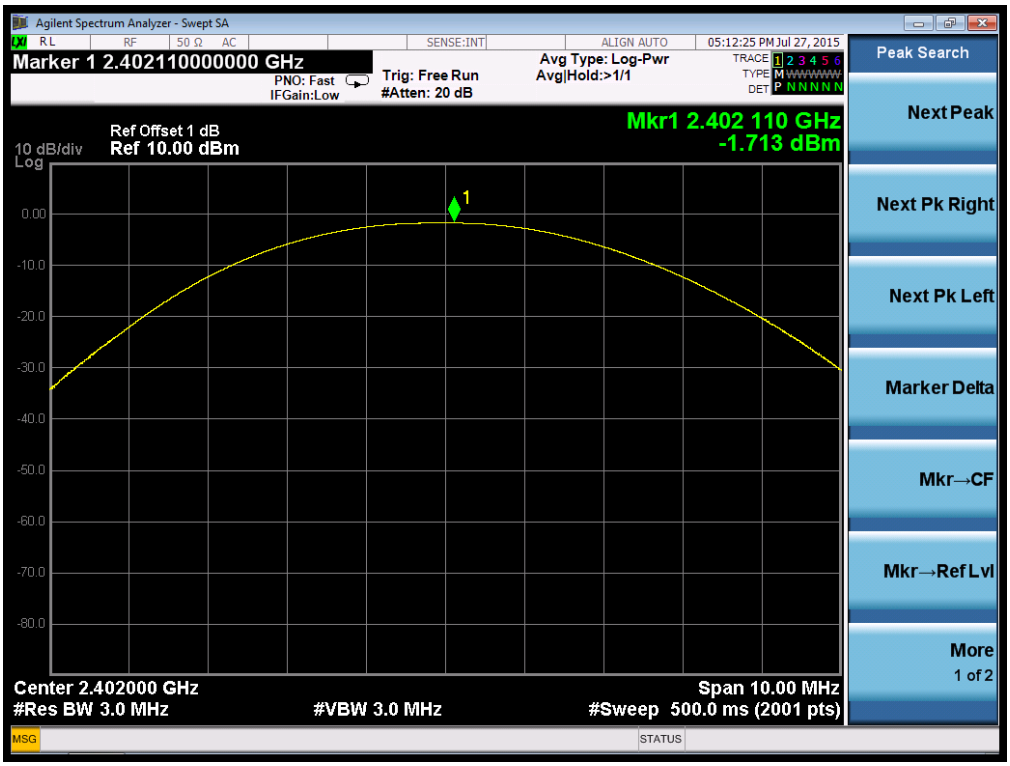
2DH5 2480MHz



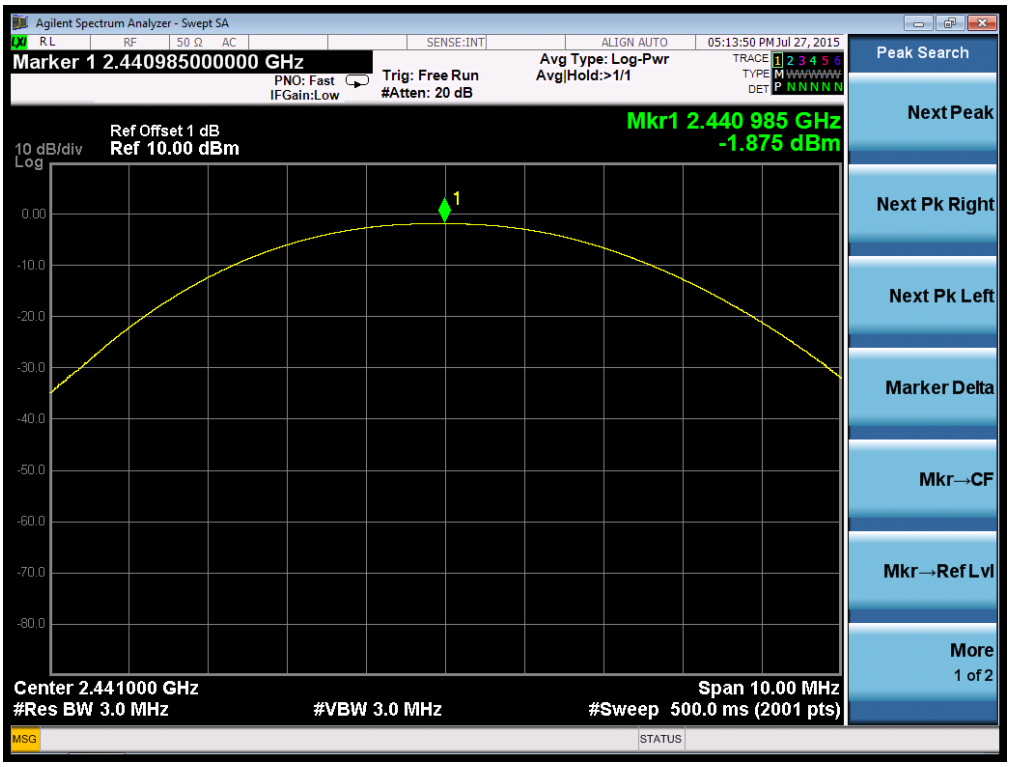
Product	:	Tablet PC
Test Item	:	Power Output
Test Mode	:	Mode 3: Transmitter-3Mbps (8DPSK_DH5)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
0	2402	-1.713	30.00	Pass
39	2441	-1.875	30.00	Pass
78	2480	-3.240	30.00	Pass

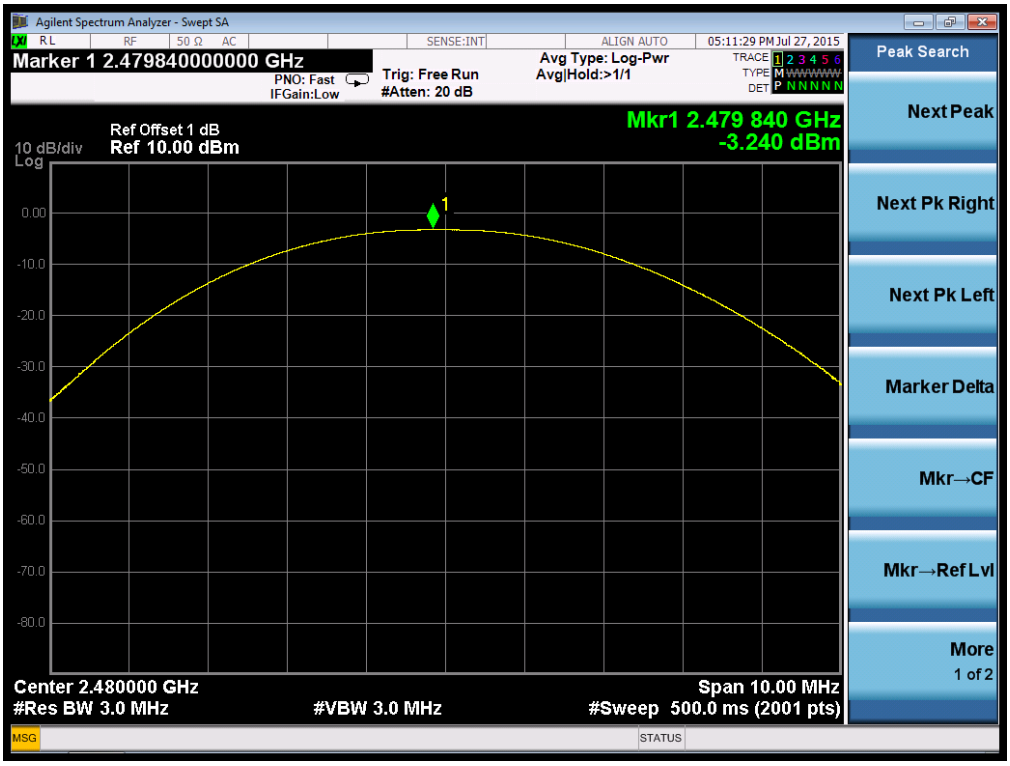
3DH5 2402MHz



3DH5 2441MHz



3DH5 2480MHz



11. Band Edges Measurement

11.1Test Limit

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

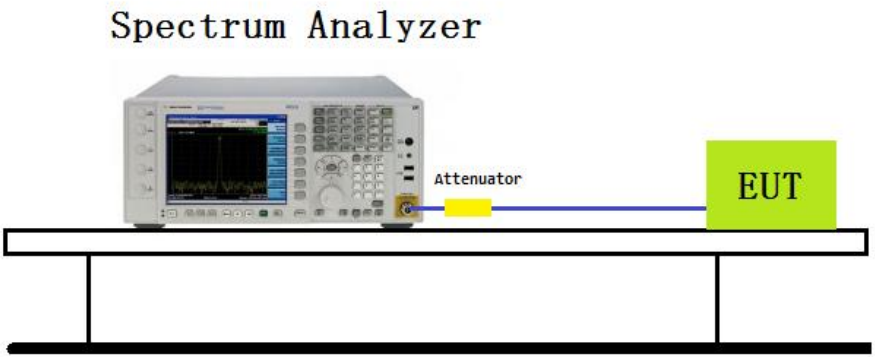
11.2Test Procedure

a. The transmitter output was connected to the spectrum analyzer via a low lose cable.

b. Set both RBW and VBW of spectrum analyzer to 100 KHz with convenient frequency span including 100 KHz bandwidth from band edge.

c. The band edges was measured and recorded.

11.3Test Setup Layout



11.4List of Measuring Equipment Used

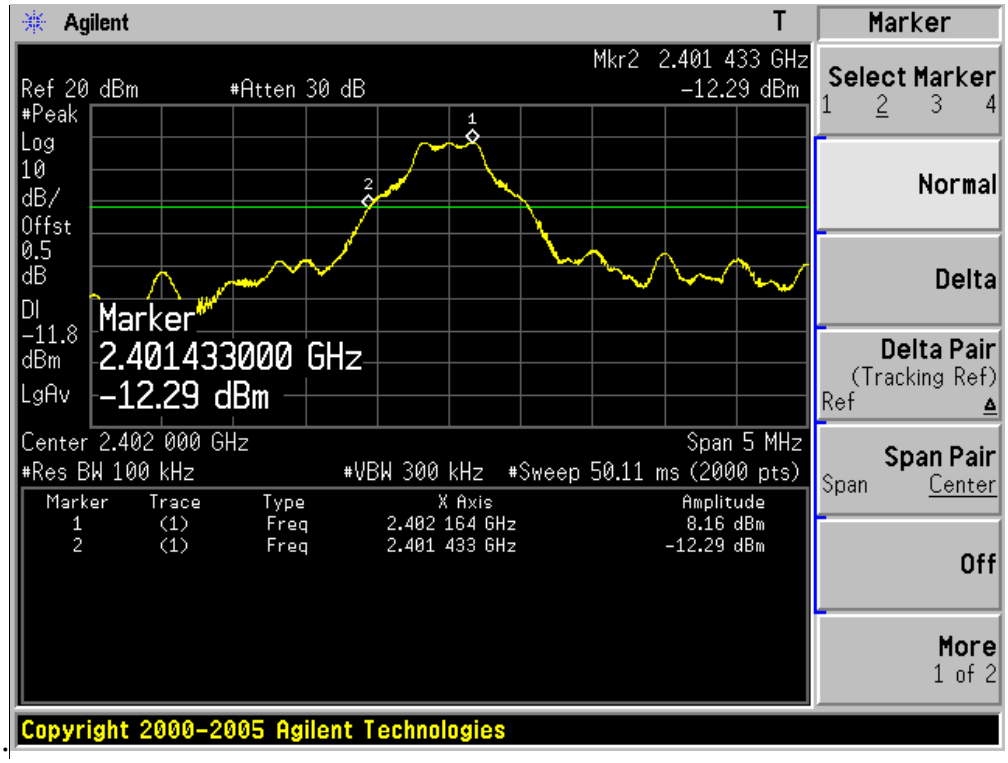
Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	Agilent	E4407B	MY44211883	2014.09.02	2015.09.03

11.5Test Result and Data

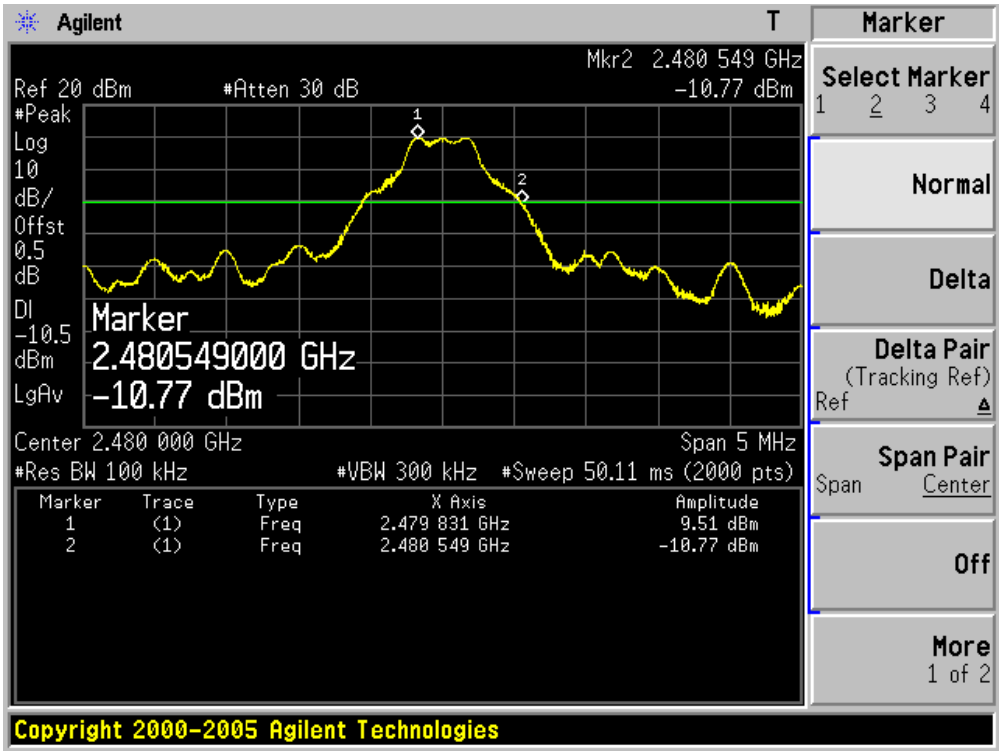
Test Date: Jul 27, 2015	Temperature: 25℃
Atmospheric pressure: 1020 hPa	Humidity: 55%

Product	:	Tablet PC
Test Item	:	Band-edge Compliance of RF Conducted Emissions
Test Mode	:	Mode 1: Transmitter-1Mbps (GFSK_DH5)

Channel 00 (2402MHz)

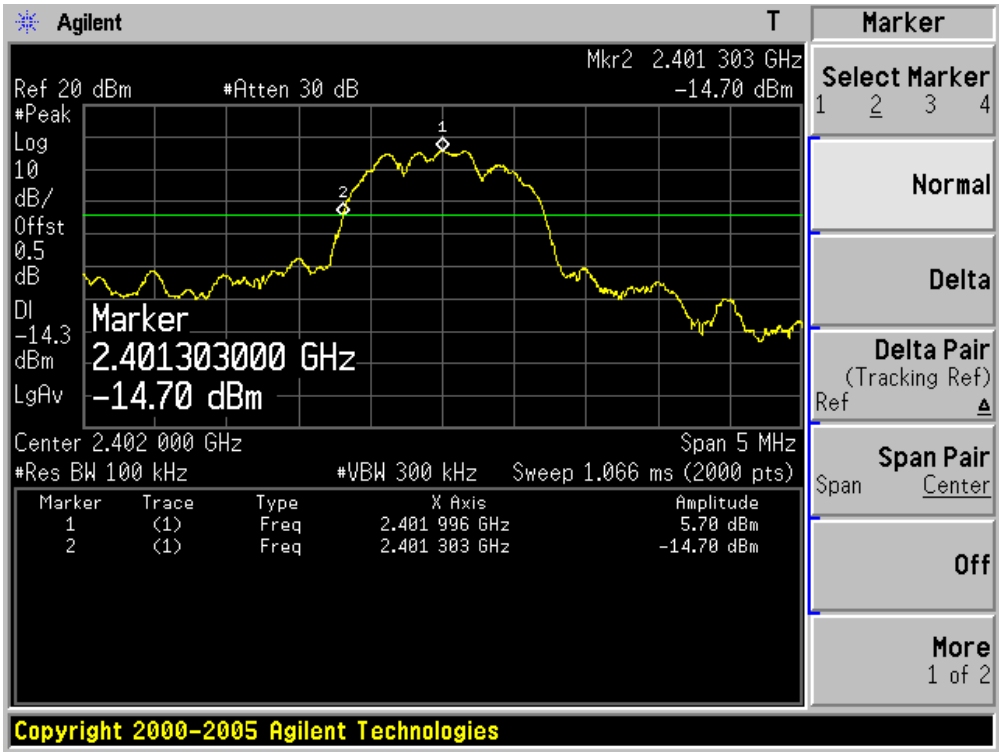


Channel 78 (2480MHz)

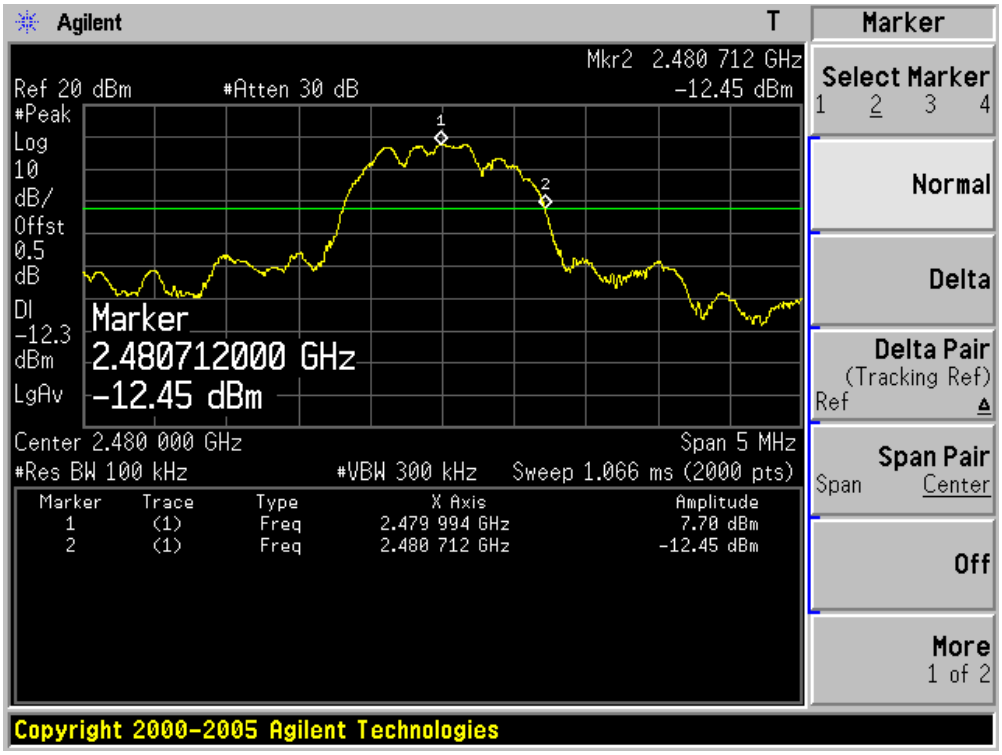

Agilent
T
Marker
Mkr2 2.480 549 GHz
Ref 20 dBm
#Atten 30 dB
-10.77 dBm
#Peak
Log
10
dB/
Offst
0.5
dB
Dl
-10.5
dBm
LgAv
Marker
2.480549000 GHz
-10.77 dBm
Center 2.480 000 GHz
Span 5 MHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 50.11 ms (2000 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.479 831 GHz 9.51 dBm
2 (1) Freq 2.480 549 GHz -10.77 dBm
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2005 Agilent Technologies

Product	:	Tablet PC
Test Item	:	Band-edge Compliance of RF Conducted Emissions
Test Mode	:	Mode 2: Transmitter-2Mbps (Pi/4 DQPSK_DH5)

Channel 00 (2402MHz)

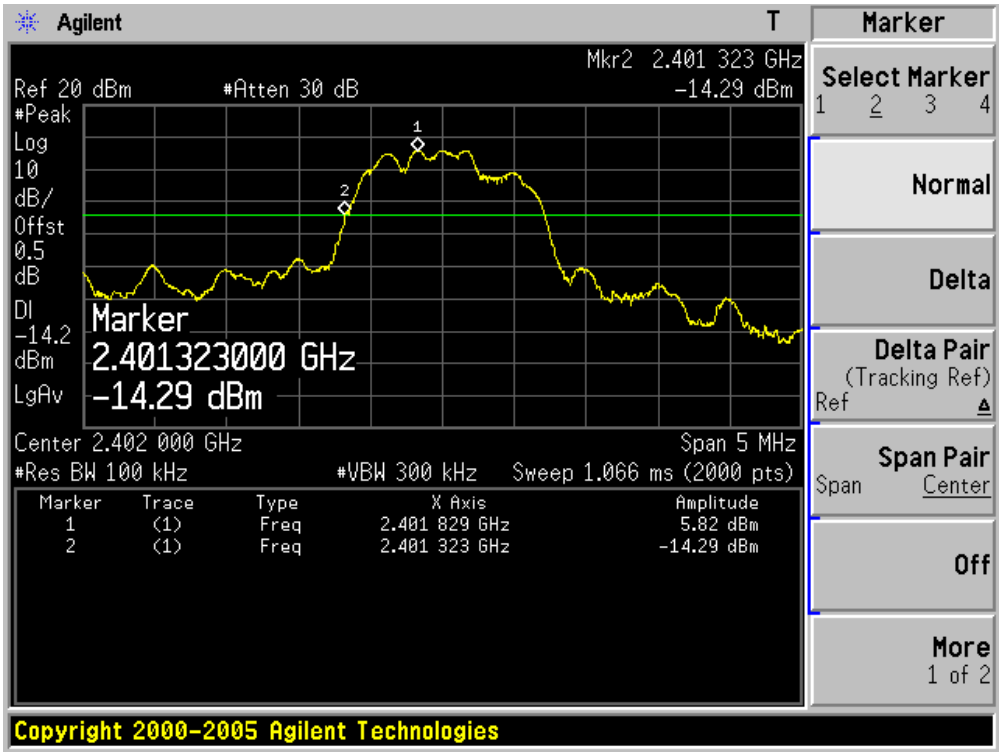


Channel 78 (2480MHz)

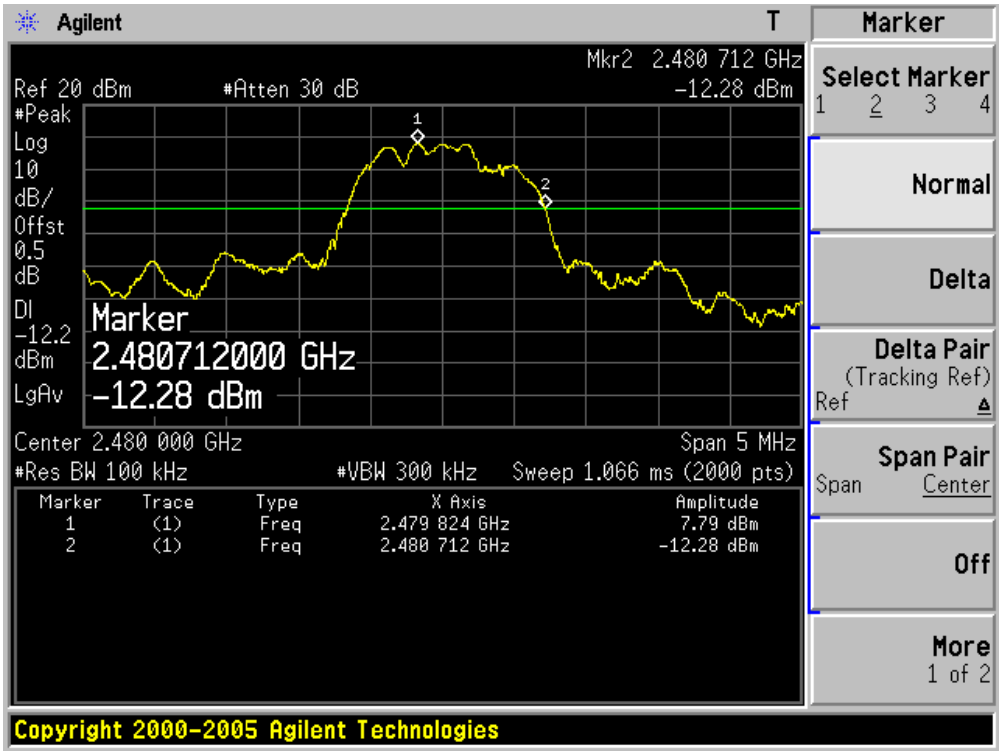

Agilent
T
Marker
Mkr2 2.480 712 GHz
Ref 20 dBm
#Atten 30 dB
-12.45 dBm
#Peak
Log
10
dB/
Offst
0.5
dB
Dl
-12.3
dBm
LgAv
Marker
2.480712000 GHz
-12.45 dBm
Center 2.480 000 GHz
Span 5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.066 ms (2000 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.479 994 GHz 7.70 dBm
2 (1) Freq 2.480 712 GHz -12.45 dBm
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2005 Agilent Technologies

Product	:	Tablet PC
Test Item	:	Band-edge Compliance of RF Conducted Emissions
Test Mode	:	Mode 3: Transmitter-3Mbps (8DPSK_DH5)

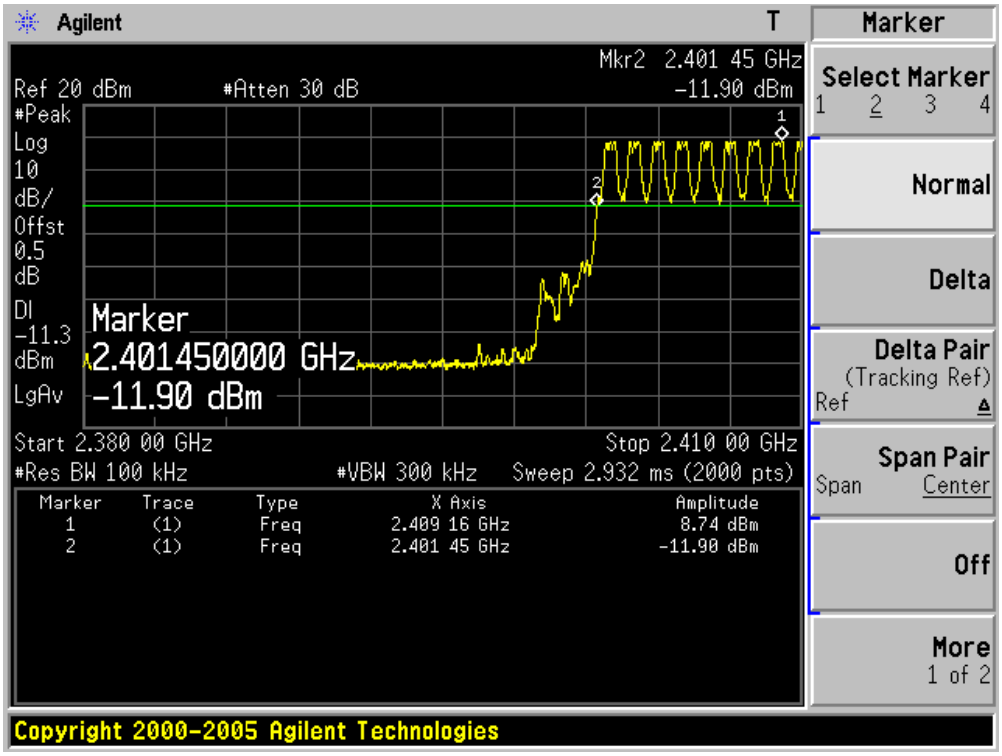
Channel 00 (2402MHz)

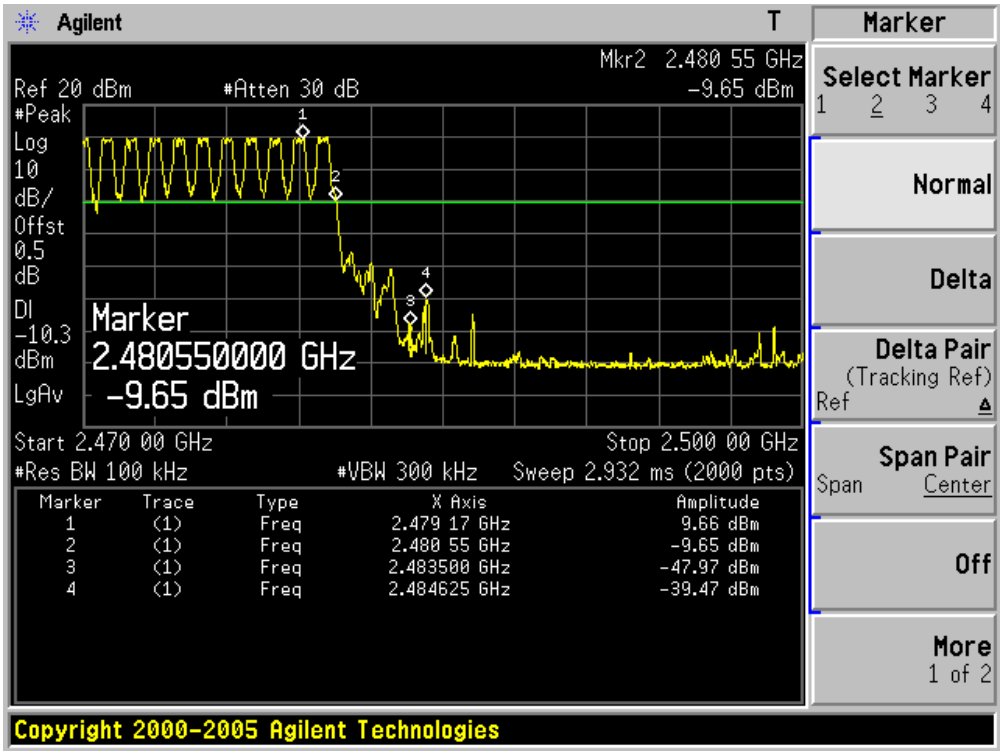


Channel 78 (2480MHz)


Agilent
T
Marker
Mkr2 2.480 712 GHz
Ref 20 dBm
#Atten 30 dB
-12.28 dBm
#Peak
Log
10
dB/
Offst
0.5
dB
Dl
-12.2
dBm
LgAv
Marker
2.480712000 GHz
-12.28 dBm
Center 2.480 000 GHz
Span 5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.066 ms (2000 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.479 824 GHz 7.79 dBm
2 (1) Freq 2.480 712 GHz -12.28 dBm
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2005 Agilent Technologies

Product	:	Tablet PC
Test Item	:	Band-edge Compliance of RF Conducted Emissions
Test Mode	:	Mode: Hopping Mode




Agilent
T
Marker
Mkr2 2.480 55 GHz
Ref 20 dBm
#Atten 30 dB
-9.65 dBm
#Peak
Log
10
dB/
Offst
0.5
dB
Dl
-10.3
dBm
LgAv
Marker
2.480550000 GHz
-9.65 dBm
Start 2.470 00 GHz
Stop 2.500 00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.932 ms (2000 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.479 17 GHz 9.66 dBm
2 (1) Freq 2.480 55 GHz -9.65 dBm
3 (1) Freq 2.483500 GHz -47.97 dBm
4 (1) Freq 2.484625 GHz -39.47 dBm
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2005 Agilent Technologies

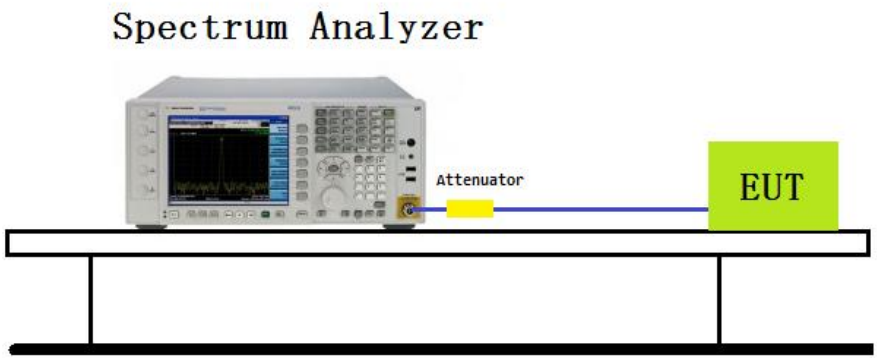
12. Spurious RF Conducted Emissions

12.1Test Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	N9010A	Agilent	MY54200207	2014/10/9	2015/10/8

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

12.2Test Setup



12.3Limit

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 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, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) of FCC part 15 is not required.

12.4Test Procedure

According to ANSI C63.10: 2009.

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.

RBW = 100 kHz

VBW ≧ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this section.

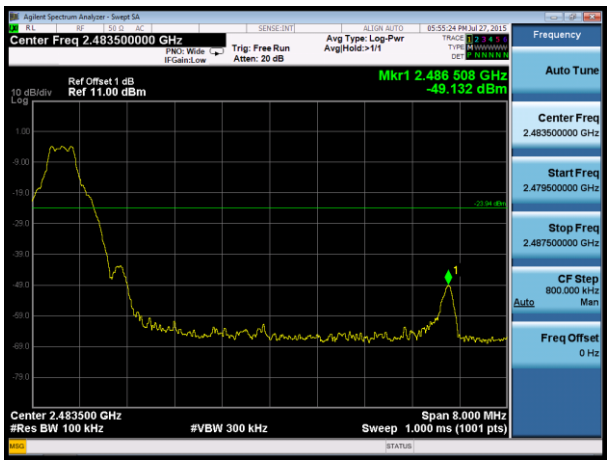
12.5Test Result

Product	:	Tablet PC
Test Item	:	Spurious RF Conducted Emissions
Test Mode	:	Mode 1: Transmitter-1Mbps (GFSK_DH5)

Mode 1: Transmit by DH5 (2402MHz)

Mode 1: Transmit by DH5 (2441MHz)

Mode 1: Transmit by DH5 (2480MHz)



Product	:	Tablet PC
Test Item	:	Spurious RF Conducted Emissions
Test Mode	:	Mode 2: Transmitter-2Mbps (Pi/4 DQPSK_DH5)

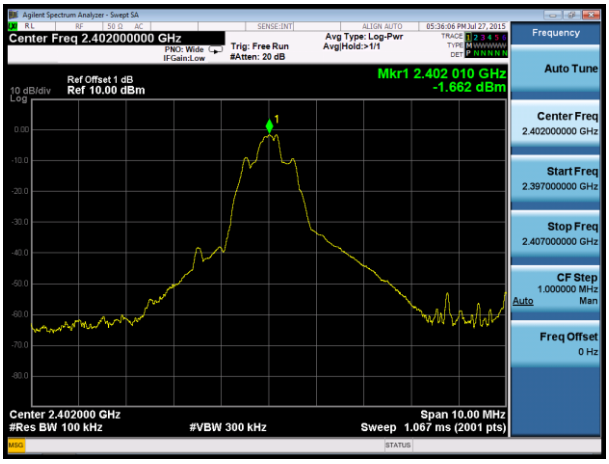
Mode 2: Transmit by 2DH5 (2402MHz)

Mode 2: Transmit by 2DH5 (2441MHz)

Mode 2: Transmit by 2DH5 (2480MHz)

Product	:	Tablet PC
Test Item	:	Spurious RF Conducted Emissions
Test Mode	:	Mode 3: Transmitter-3Mbps (8DPSK_DH5)

Mode 3: Transmit by 3DH5 (2402MHz)



Mode 3: Transmit by 3DH5 (2441MHz)

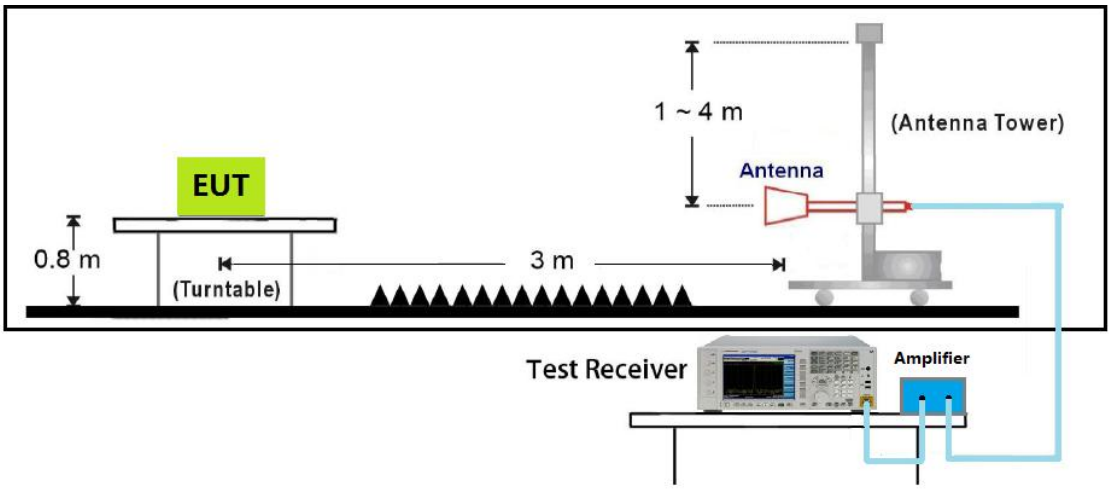
Mode 3: Transmit by 3DH5 (2480MHz)

13. Radiated Emission Band Edge

13.1Test Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
EMI Test Receiver	R&S	ESCI	100563	2015.02.10	2016.02.09
H64 Preamplifier	HP	8447F	3113A05582	2015.03.24	2016.03.23
Preamplifier	Agilent	8449B	3008A02342	2015.03.24	2016.03.23
Ultra Broadband Antenna	R&S	HL562	100362	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	9170-348	2015.05.24	2016.05.23
Spectrum Analyzer	R&S	FSP40	100324	2015.03.23	2016.03.24
Spectrum Analyzer	N9010A	Agilent	MY54200207	2014.10.09	2015.10.08
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30

13.2 Test Setup



13.3Limit

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a) of FCC part 15.

13.4Test Procedure

According to ANSI C63.10: 2013.

This test is required for any spurious emission or modulation product that falls in a Restricted Band, as defined in Section 15.205 of FCC part 15. 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:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for f ≧ 1 GHz, 100 kHz for f < 1GHz

VBW ≧ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Follow the guidelines in ANSI C63.10 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit specified in Section 15.35(b) of FCC part 15.

Now set the VBW to 10 Hz, while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209 of FCC Part 15. If the dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a “duty cycle correction factor”, derived from 20log (dwell time/100 ms), in an effort to demonstrate compliance with the 15.209 limit of FCC part 15.

If the emission on which a radiated measurement must be made is located at the edge of the authorized band of operation, then the alternative “marker-delta” method may be employed.

13.5Test Result

All of the test result shown indicates the worst case, and spectrum analyzer parameters setting as shown below:

Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;

Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Site: AC102					Time: 2015/07/21			
Limit: FCC_Part15.209_RE(3m)					Margin: 0			
Probe: Horn_3117_00167055(1-18GHz)					Polarity: Horizontal			
EUT:Tablet PC					Power: DC			
Note: Mode1: Transmit at channel 2402MHz by DH5								
No	**Mark**	**Frequency (MHz)**	**Measure Level (dBuV/m)**	**Reading Level (dBuV)**	**Over Limit (dB)**	**Limit (dBuV/m)**	**Factor (dB)**	**Type**
1		2390.000	60.652	28.848	-13.348	74.000	31.804	PK
2	*	2402.026	93.727	61.88	N/A	N/A	31.847	PK

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2402MHz by DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.621	15.817	-6.379	54.000	31.804	AV
2	*	2401.932	80.588	48.741	N/A	N/A	31.847	AV

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2402MHz by DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	61.459	29.655	-12.541	74.000	31.804	PK
2	*	2402.026	87.264	55.417	N/A	N/A	31.847	PK

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2402MHz by DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.628	15.824	-6.372	54.000	31.804	AV
2	*	2401.932	78.287	46.440	N/A	N/A	31.847	AV

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2480MHz by DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.892	91.188	59.061	N/A	N/A	32.127	PK
2		2483.500	61.069	28.929	-12.931	74.000	32.140	PK

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2480MHz by DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.892	78.415	46.288	N/A	N/A	32.127	AV
2		2483.500	47.672	15.532	-6.328	54.000	32.140	AV

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2480MHz by DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.914	89.843	57.716	N/A	N/A	32.127	PK
2		2483.500	60.675	28.535	-13.325	74.000	32.140	PK

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2480MHz by DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.848	80.729	48.602	N/A	N/A	32.127	AV
2		2483.500	47.686	15.546	-6.314	54.000	32.140	AV

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:Tablet PC	Power: DC
Note: Mode2: Transmit at channel 2402MHz by 2DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	60.948	29.144	-13.052	74.000	31.804	PK
2	*	2401.932	93.366	61.519	N/A	N/A	31.847	PK

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:Tablet PC	Power: DC
Note: Mode2: Transmit at channel 2402MHz by 2DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.633	15.829	-6.367	54.000	31.804	AV
2	*	2401.932	76.143	44.296	N/A	N/A	31.847	AV

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:Tablet PC	Power: DC
Note: Mode2: Transmit at channel 2402MHz by 2DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	60.355	28.551	-13.645	74.000	31.804	PK
2	*	2401.744	87.607	55.761	N/A	N/A	31.846	PK

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:Tablet PC	Power: DC
Note: Mode2: Transmit at channel 2402MHz by 2DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.627	15.823	-6.373	54.000	31.804	AV
2	*	2402.088	77.517	45.670	N/A	N/A	31.847	AV

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:Tablet PC	Power: DC
Note: Mode2: Transmit at channel 2480MHz by 2DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.958	92.567	60.44	N/A	N/A	32.127	PK
2		2483.500	60.879	28.739	-13.121	74.000	32.140	PK

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:Tablet PC	Power: DC
Note: Mode2: Transmit at channel 2480MHz by 2DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.090	76.577	44.449	N/A	N/A	32.128	AV
2		2483.500	47.694	15.554	-6.306	54.000	32.140	AV

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:Tablet PC	Power: DC
Note: Mode2: Transmit at channel 2480MHz by 2DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	88.092	55.964	N/A	N/A	32.128	PK
2		2483.500	61.997	29.857	-12.003	74.000	32.140	PK

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:Tablet PC	Power: DC
Note: Mode2: Transmit at channel 2480MHz by 2DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.156	76.865	44.737	N/A	N/A	32.128	AV
2		2483.500	47.703	15.563	-6.297	54.000	32.140	AV

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:Tablet PC	Power: DC
Note: Mode3: Transmit at channel 2402MHz by 3DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	60.726	28.922	-13.274	74.000	31.804	PK
2	*	2401.791	93.857	62.01	N/A	N/A	31.846	PK

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:Tablet PC	Power: DC
Note: Mode3: Transmit at channel 2402MHz by 3DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.658	15.854	-6.342	54.000	31.804	AV
2	*	2401.977	80.302	48.455	N/A	N/A	31.847	AV

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:Tablet PC	Power: DC
Note: Mode3: Transmit at channel 2402MHz by 3DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	61.570	29.766	-12.430	74.000	31.804	PK
2	*	2401.977	90.314	58.467	N/A	N/A	31.847	PK

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:Tablet PC	Power: DC
Note: Mode3: Transmit at channel 2402MHz by 3DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.678	15.874	-6.322	54.000	31.804	AV
2	*	2402.070	77.688	45.841	N/A	N/A	31.847	AV

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:Tablet PC	Power: DC
Note: Mode3: Transmit at channel 2480MHz by 3DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.892	86.964	54.837	N/A	N/A	32.127	PK
2		2483.500	61.868	29.728	-12.132	74.000	32.140	PK

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:Tablet PC	Power: DC
Note: Mode3: Transmit at channel 2480MHz by 3DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.024	75.749	43.621	N/A	N/A	32.128	AV
2		2483.500	47.679	15.539	-6.321	54.000	32.140	AV

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:Tablet PC	Power: DC
Note: Mode3: Transmit at channel 2480MHz by 3DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.914	92.33	60.203	N/A	N/A	32.127	PK
2		2483.500	61.779	29.639	-12.221	74.000	32.140	PK

Site: AC102	Time: 2015/07/21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:Tablet PC	Power: DC
Note: Mode3: Transmit at channel 2480MHz by 3DH5	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.024	78.695	46.567	N/A	N/A	32.128	AV
2		2483.500	47.644	15.504	-6.356	54.000	32.140	AV