

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT **CLASS II PERMISSIVE CHANGE**

OF

Product Name: Brand Name: Model Name:	BlueSPEAK II i.Tech C51-A06019-XX (x = 0-9, A-Z, a-z or blank)
Model Differences:	No constructional difference. Difference in logo / silkscreen, color, type of packing and user manual
FCC ID:	RKIC51-A05035-XX
Report No.:	EF/2006/70002
Issue Date:	Jul. 05, 2006
FCC Rule Part:	§15.247
Prepared for	i.Tech Dynamic Limited
	5/F, Harbourfront Landmark, 11 Wan Hoi Street, Hunghom, Kowloon, Hong Kong
Prepared by	SGS Taiwan Ltd.
	No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei County, Taiwan.



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FCC ID: RKIC51-A05035-XX

Report No: EF/2006/70002 Issue Date: Jul. 17, 2006 Page: 2

VERIFICATION OF COMPLIANCE

Applicant:	i.Tech Dynamic Limited			
	5/F, Harbourfront Landmark, 11 Wan Hoi Street, Hunghom, Kowloon, Hong Kong			
Equipment Under Test:	BlueSPEAK II			
Brand Name:	i.Tech			
FCC ID Number:	RKIC51-A05035-XX			
Model No.:	C51-A06019-XX (x = 0-9, A-Z, a-z or blank)			
Model Difference:	No constructional difference. Difference in logo / silkscreen, color, type of packing and user manual			
File Number:	EF/2006/70002			
Date of test:	Jul. 03, 2006 ~ Jul. 05, 2006			
Date of EUT Received:	Jul. 03, 2005			

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.247

The test results of this report relate only to the tested sample identified in this report.

Test By:	Danny Yeh	Date	Jul. 17, 2006
_	Danny Yeh		
Prepared By:	Elisa Chen	Date	Jul. 17, 2006
_	Elisa Chen		
Approved By:	Timent In	Date	Jul. 17, 2006

Vincent Su



Version

Version No.	Date
00	Jul. 05, 2006
01	Jul. 17, 2006



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1. GENERAL INFORMATION

1.1. Product Description

The i.Tech Dynamic Limited, Model: C51-A06019-XX (referred to as the EUT in this report) is a Bluetooth Car Kit.

A major technical descriptions of EUT is described as following:

A). Operation Frequency: 2402 – 2480MHz, 79 channels

B). Rated output power: 1.50 dBm

C). Modulation type: Frequency Hopping Spread Spectrum (FHSS) (GFSK)

D). Antenna Designation: Chip Antenna, 1.2 dBi, Non-User Replaceable (Fixed)

E). Power Supply: Input: 12V~24Vdc from Car Battery

1.2. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: <u>**RKIC51-A05035-XX**</u> filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules. The composite system (Digital Device) is compliance with Subpart B is authorized under a Verification.

1.3. Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4. Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the address of SGS Taiwan Ltd. No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan. The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003 and CISPR 22/EN 55022 requirements. Site No. 1(3 &10 meters) Registration Number: 94644, Both OATS and Anechoic chamber (3 meters) was accredited by CNLA (0513).

1.5. Special Accessories

Not available for this EUT intended for grant.

1.6. Equipment Modifications

Not available for this EUT intended for grant.



2. SYSTEM TEST CONFIGURATION

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2. EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

2.3. Test Procedure

2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4-2003.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 8 and 13 of ANSI C63.4-2003.



2.4. Configuration of Tested System

Fig. 2-1 Configuration of Tested System

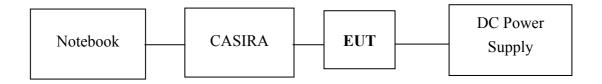


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Notebook	Compaq	PSA10L-3V1JDP	Z3062680P	N/A	Un-shielding
2.	CASIRA	CSR	BCES301199/1	7383070403	N/A	Un-shielding
3.	DC Power Supply	TOPWARD	3303A	715856	N/A	Un-shielding
4.	Test Software	CSR	BlueSuite 1.22	Version1.22	N/A	N/A



3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.207(a)	Conducted Emission	N/A
§15.247(b)(1)	Peak Output Power	Compliant
§15.247(a)	20dB Bandwidth	N/A
§15.247(c)	100 KHz Bandwidth Of Fre-	Compliant
	quency Band Edges	
§15.209(a) (f)	Spurious Emission	Compliant
§15.247(a)(1)	Frequency Separation	N/A
§15.247(a)(1)(iii)	Number of hopping frequency	N/A
§15.247(a)(1)(iii)	Time of Occupancy	N/A
§15.247	Peak Power Density	N/A
§15.203,	Antenna Requirement	N/A
§15.247(b)(4)(i)		

4. DESCRIPTION OF TEST MODES

The EUT has been tested under Engineering mode for staying in continuous transmitting and receiving.

This is Class II Permissive Change report, channel low (2402MHz)
, mid (2441MHz) and high

(2480MHz) with highest data rate are chosen for conducted power, spurious emission and band edge testing



5. PEAK OUTPUT POWER MEASUREMENT

5.1. Standard Applicable

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850MHz band: 1Watt. For all other frequency hopping systems in the 2400 - 2483.5MHz band: 0.125 Watts.

5.2. Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter or spectrum. (Channel power function, RBW, VBW = 1MHz)
- 3. Record the max. reading.
- 4. Repeat above procedures until all frequency measured were complete.

СН	Frequency (MHz)	Reading Power dBm	Cable Loss	Output Power dBm	Output Power W	Limit (W)
LOW	2402.0	0.45	0.20	0.65	0.00116	1
MID	2441.0	0.50	0.20	0.70	0.00117	1
HIGH	2480.0	-0.14	0.20	0.06	0.00101	1

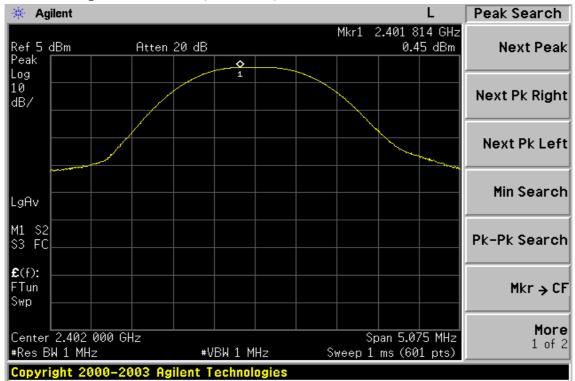
5.3. Measurement Result

5.4. Measurement Equipment Used:

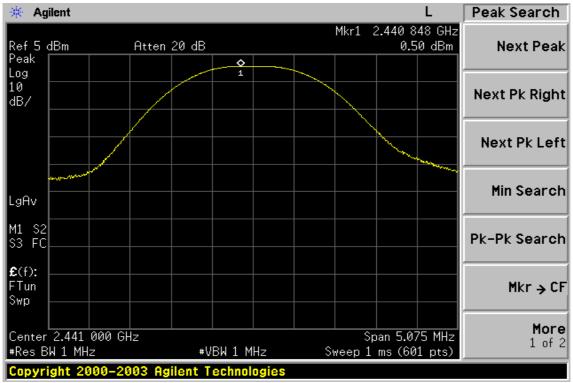
EQUIPMENT MFR		MODEL	SERIAL	LAST	CAL DUE.
ТҮРЕ		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	R&S	FSP 40	100034	05/27/2005	05/26/2006
Spectrum Analyzer	Agilent	E7405A	US41160416	08/27/2005	08/27/2006
Spectrum Analyzer	Agilent	E4446A	MY43360126	01/22/2006	01/21/2007
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A
Attenuator	Mini-Circult	BW-S6W5	N/A	10/07/2005	10/06/2006



Peak Power Output Data Plot (CH Low)



Peak Power Output Data Plot (CH Mid)





Peak Power Output Data Plot (CH High)





6. 100KHz BANDWIDTH OF BAND EDGES MEASUREMENT

6.1. Standard Applicable

According to §15.247(c), in any 100 KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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, 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 in15.209(a).

6.2. Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set center frequency of spectrum analyzer = operating frequency.
- 4. Set the spectrum analyzer as RBW, VBW=100KHz, Span=25MHz, Sweep = auto
- 5. Mark Peak, 2.390GHz and 2.4835GHz and record the max. level.
- 6. Repeat above procedures until all frequency measured were complete.
- 7. Radiated Emission refer to section 9.

6.3. Measurement Result

Refer to attach spectrum analyzer data chart.

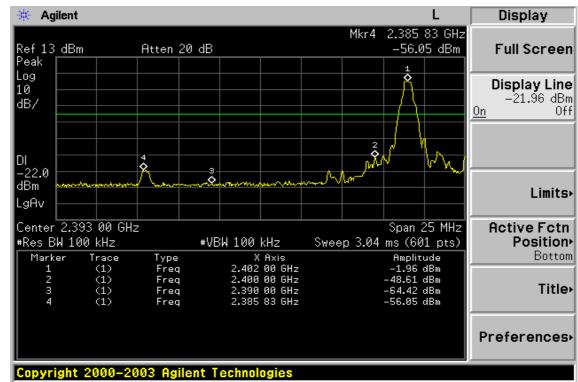
Conducted Emission Test Site								
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.			
ТҮРЕ		NUMBER	NUMBER	CAL.				
Spectrum Analyzer	Agilent	E4446A	MY43360126	03/29/2005	03/28/2006			
Spectrum Analyzer	Agilent	7405A	US41160416	06/28/2005	06/29/2006			
Spectrum Analyzer	R&S	FSP 40	100034	11/09/2005	11/10/2006			
Low Loss Cable	HUBER+SUHNE R	SUCOFLEX 104PEA	N/A	N/A	N/A			
Attenuator	Mini-Circult	BW-S10W5	N/A	10/07/2005	10/06/2006			
Attenuator	Mini-Circult	BW-S6W5	N/A	10/07/2005	10/06/2006			
Splitter	Mini-Circult	ZFSC-2-10G	N/A	10/07/2005	10/06/2006			

6.4. Measurement Equipment Used:

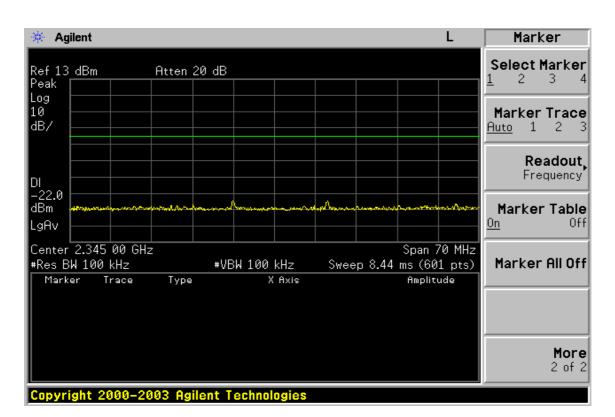
Note: Measurement Equipment for radiated emission refers to section 9.

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Conducted Emission: Test Data CH-Low





🔆 Agilent L Display Mkr4 2.496 08 GHz Ref 13 dBm -57.31 dBm Atten 20 dB Full Screen Peak φ Log **Display Line** 10 -16.55 dBm dB/ <u>0n</u> Off 2 Ŷ DI \$ –16.5 dBm Limits⊦ LgAv Start 2.475 00 GHz #Res BW 100 kHz Stop 2.500 00 GHz Active Fctn #VBW 100 kHz Sweep 3.04 ms (601 pts) Position • X Axis 2.480 00 GHz 2.483 56 GHz 2.484 50 GHz Type Freq Freq Bottom Marker Trace Amplitude (1) (1) (1) 3.45 dBm -46.07 dBm -44.16 dBm 1234 Title⊦ Freq -57.31 dBm (1)Freq 2.496 08 GHz Preferences+ Copyright 2000-2003 Agilent Technologies

Conducted Emission: Test Data CH-High



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Radiated Emission:

Operation Mode	TX CH Low	Test Date	Jul. 01, 2006
Fundamental Frequency	2402 MHz	Test By	Danny
Temperature	25 °C	Pol	Ver.
Humidity	65 %		

Freq.Reading Reading Ant./CLPeakAVLimitLimitMargin Remar(MHz)(dBuV)(dBuV)CF(dB)(dBuV/m)(dBuV/m)(dBuV/m)(dBuV/m)2386.074.0054.002390.074.0054.00		Peak	AV	Actua	l FS	Peak	AV	
2386.0 74.00 54.00	Freq.	Reading	Reading Ant./CL	Peak	AV	Limit	Limit	Margin Remark
	(MHz)	(dBuV)	(dBuV) CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)(dBuV/m) (dB)
2390.0 74.00 54.00	2386.0					74.00	54.00	
	2390.0					74.00	54.00	
						т		1 1 01 2000
Operation Mode TX CH Low Test Date Jul. 01, 2006	1							
Fundamental Frequency 2402 MHz Test By Danny	Fundamer	ntal Freque	ency 2402 MHz				t By	2
Temperature 25 °C Pol Hor.	Temperate	ure	25 °C			Pol		Hor.
Humidity 65 %	Humidity		65 %					
	-							
Peak AV Actual FS Peak AV		Peak	AV	Actua	l FS	Peak	AV	
Freq. Reading Reading Ant./CL Peak AV Limit Limit Margin Remar	Freq.	Reading	Reading Ant./CL	Peak	AV	Limit	Limit	Margin Remark
(MHz) (dBuV) (dBuV) CF(dB) (dBuV/m) (dBuV/m) (dBuV/m) (dBuV/m) (dB)	(MHz)	(dBuV)	(dBuV) CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)(dBuV/m) (dB)
2386.0 74.00 54.00	2386.0					74.00	54.00	
2390.0 74.00 54.00	2390.0					74.00	54.00	

Remark :

- (1) Datas of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column °

(3) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

(4) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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Radiated Emission:

Operation Mode	TX CH High	Test Date	Jul. 01, 2006
Fundamental Frequency	2480 MHz	Test By	Danny
Temperature	25 °C	Pol	Ver.
Humidity	65 %		

	Peak	AV		Actu	al FS	Peak	AV		
Freq.	Reading	Reading	Ant./CL	Peak	AV	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m) (dBuV/m)	(dBuV/m) (dB)	
2483.5						74.00	54.00		Peak
2484.5						74.00	54.00		Peak
2496.1						74.00	54.00		Peak
Operation Fundamen Temperat Humidity	ntal Freque ure		-				st Date st By l	Jul. 01, 20 Danny Hor.	006
	Peak	AV		Actua	al FS	Peak	AV		

Freq.	Reading	Reading Ant	./CL	Peak	AV	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV) CF	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)(dBuV/m]	(dB)	
2483.5		-				74.00	54.00		Peak
2484.5		-				74.00	54.00		Peak
2496.1		-				74.00	54.00		Peak

Remark :

- (1) Datas of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column °
- (3) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



7. SPURIOUS RADIATED EMISSION TEST

7.1. . Standard Applicable

According to \$15.247(c), all other emissions outside these bands shall not exceed the general radiated emission limits specified in \$15.209(a). And according to \$15.33(a)(1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

7.2. EUT Setup

- 1. The radiated emission tests were performed in the 3 meter open-test site, using the setup in accordance with the ANSI C63.4-2003.
- 2. The EUT was put in the front of the test table. The peripherals was placed on the side of the host system. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
- 3. The spacing between the peripherals was 10 centimeters.
- 4. External I/O cables were draped along the edge of the test table and bundle when necessary.
- 5. The host PC system was connected with 110Vac/60Hz power source.

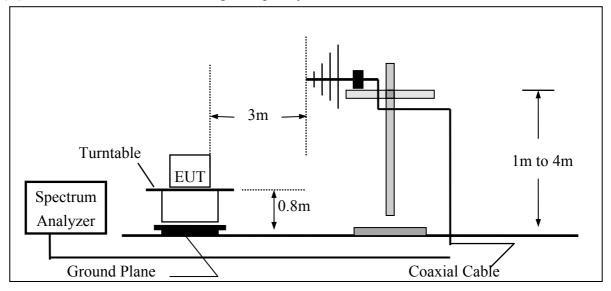
7.3. Measurement Procedure

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Repeat above procedures until all frequency measured were complete.

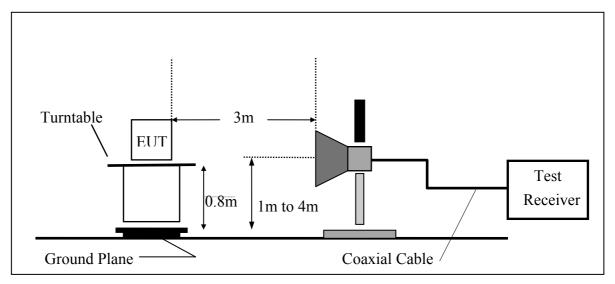


7.4. Test SET-UP (Block Diagram of Configuration)

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1000MHz





7.5. Measurement Equipment Used:

966 Chamber										
EQUIPMENT TYPE	-		SERIAL NUMBER	LAST CAL.	CAL DUE.					
Spectrum Analyzer	R&S	NUMBER FSP 40	100034	05/27/2006	05/26/2007					
Spectrum Analyzer	Agilent	E7405A	US41160416	08/27/2005	08/26/2006					
Bilog Antenna	SCHWAZBECK	VULB9163	152	06/03/2006	06/02/2007					
Horn antenna	Schwarzbeck	BBHA 9120D	309/320	08/16/2005	08/15/2006					
Horn antenna	Schwarzbeck	BBHA 9170	184/185	07/04/2006	07/03/2007					
Pre-Amplifier	HP	8447D	2944A09469	07/19/2005	07/18/2006					
Pre-Amplifier	HP	8494B	3008A00578	02/26/2006	02/25/2007					
Turn Table	HD	DT420	N/A	N.C.R	N.C.R					
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R					
Controller	HD	HD100	N/A	N.C.R	N.C.R					
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	10/09/2005	10/08/2006					
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	10/09/2005	10/08/2006					
Site NSA	SGS	966 chamber	N/A	11/17/2005	11/16/2006					

7.6. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

7.7. Measurement Result

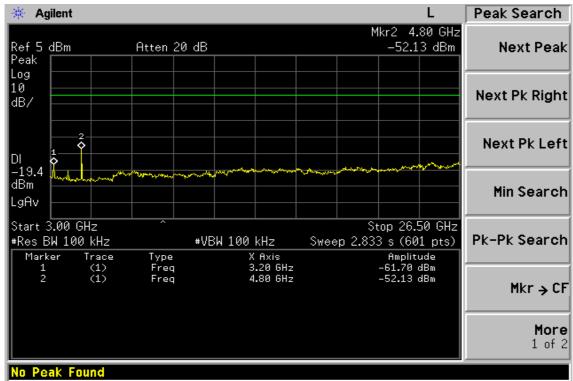
Refer to attach tabular data sheets.



🔆 Agilent L Display Mkr4 99 MHz -56.34 dBm Ref 5 dBm Atten 20 dB Full Screen Norm Log **Display Line** 10 -19.41 dBm dB/ 0n Off 0 DI -19.4 dBm Limits⊦ LgAv Stop 3.000 GHz Start 30 MHz **Active Fctn** #Res BW 100 kHz #VBW 100 kHz Sweep 358.1 ms (601 pts) Position[,] X Axis 2.401 GHz 1.604 GHz 198 MHz 99 MHz Trace (1) (1) (1) Top Type Freq Freq Marker Amplitude 0.59 dBm -60.42 dBm -58.05 dBm Title⊦ Freq З 4 -56.34 dBm Fren (1)Preferences+ No Peak Found

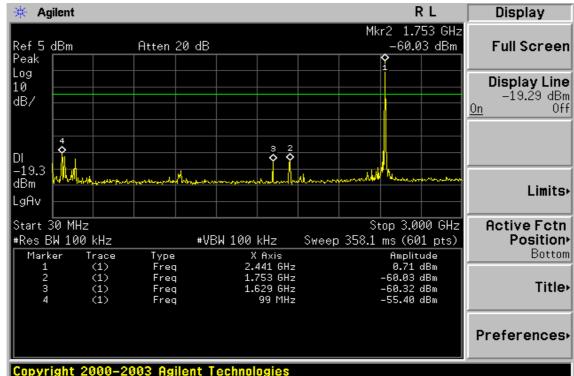
Conducted Spurious Emission Measurement Result Ch Low 30MHz – 3GHz



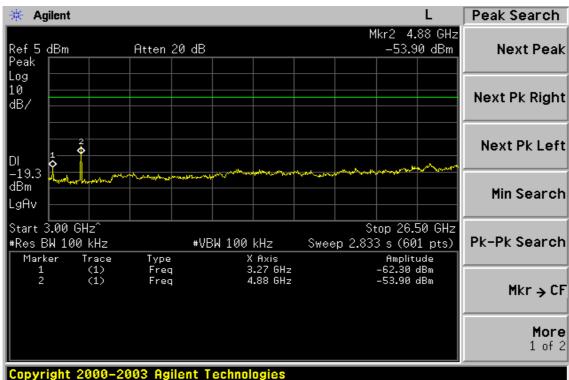




Ch Mid 30MHz – 3GHz

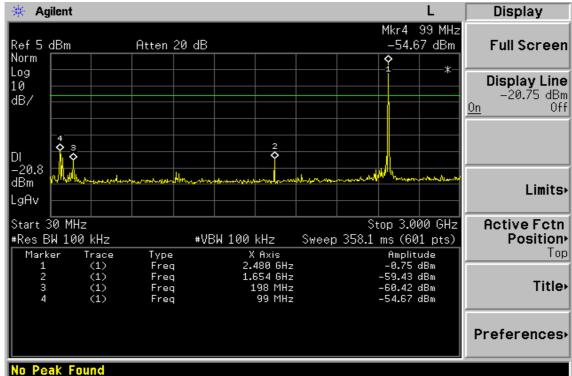




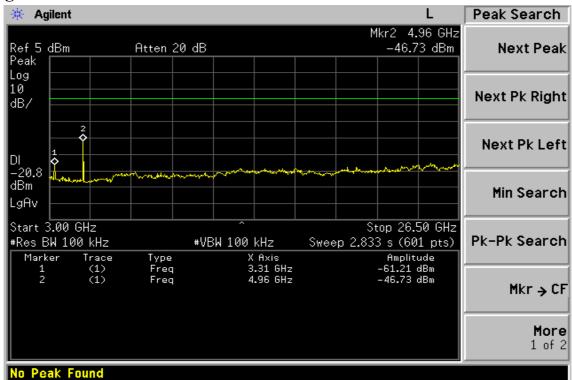




Ch High 30MHz – 3GHz



Ch High 3GHz – 26.5GHz





Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	TX CH Low	Test Date	Jul. 04, 2006
Fundamental Frequency	2402MHz	Test By	Danny
Temperature	25 °C	Pol	Ver./Hor.
Humidity	65 %		

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
37.76	V	Peak	47.79	-14.85	32.94	40.00	-7.06
55.22	V	Peak	46.80	-15.00	31.80	40.00	-8.20
37.76	Н	Peak	47.08	-14.85	32.23	40.00	-7.77
55.22	Н	Peak	45.41	-15.00	30.41	40.00	-9.59
288.02	Н	Peak	42.87	-13.85	29.02	46.00	-16.98
622.67	Н	Peak	38.40	-7.12	31.28	46.00	-14.72

Remark :

(1) Measuring frequencies from 30 MHz to the 1GHz \circ

- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	TX CH Mid	Test Date	Jul. 04, 2006
Fundamental Frequency	2441MHz	Test By	Danny
Temperature	25 °C	Pol	Ver./Hor.
Humidity	65 %		

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
39.70	V	Peak	48.02	-14.70	33.32	40.00	-6.68
57.16	V	Peak	46.67	-14.89	31.78	40.00	-8.22
297.72	V	Peak	36.09	-13.47	22.62	46.00	-23.38
39.70	Н	Peak	47.29	-14.70	32.59	40.00	-7.41
57.16	Н	Peak	45.77	-14.89	30.88	40.00	-9.12
288.02	Н	Peak	42.19	-13.85	28.34	46.00	-17.66
622.67	Н	Peak	39.39	-7.12	32.27	46.00	-13.73

Remark :

(1) Measuring frequencies from 30 MHz to the 1GHz \circ

- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	TX CH High	Test Date	Jul. 04, 2006
Fundamental Frequency	2480MHz	Test By	Danny
Temperature	25 °C	Pol	Ver./Hor.
Humidity	65 %		

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
39.70	V	Peak	48.03	-14.70	33.33	40.00	-6.67
55.22	V	Peak	46.16	-15.00	31.16	40.00	-8.84
180.35	V	Peak	34.84	-15.20	19.64	43.50	-23.86
39.70	Н	Peak	47.91	-14.70	33.21	40.00	-6.79
55.22	Н	Peak	45.90	-15.00	30.90	40.00	-9.10
288.02	Н	Peak	43.72	-13.85	29.87	46.00	-16.13
622.67	Н	Peak	39.60	-7.12	32.48	46.00	-13.52
750.71	Н	Peak	34.57	-4.44	30.13	46.00	-15.87

Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz \circ
- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.



Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	TX CH Low	Test Date	Jul. 04, 2006
Fundamental Frequency	2402 MHz	Test By	Danny
Temperature	25 °C	Pol	Ver.
Humidity	65 %		

	Peak	AV		Actu	al FS	Peak	AV		
Freq.	Reading	Reading	Ant./CL	Peak	AV	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
1604.5	54.26		-5.60	48.66		74.00	54.00	-5.34	Peak
4804.0	38.42		3.90	42.32		74.00	54.00	-11.68	Peak
7323.0									
9764.0									
12205.0									
14646.0									
17087.0									
19528.0									
21969.0									
24410.0									

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency \circ
- (2) Datas of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column °
- (4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	TX CH Low	Test Date	Jul. 04, 2006
Fundamental Frequency	2402 MHz	Test By	Danny
Temperature	25 °C	Pol	Hor.
Humidity	65 %		

	Peak	AV		Actu	al FS	Peak	AV		
Freq.	Reading	Reading	Ant./CL	Peak	AV	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
1344.5	43.21		-6.57	36.64		74.00	54.00	-17.36	Peak
1604.5	50.78		-5.60	45.18		74.00	54.00	-8.82	Peak
4804.0	37.33		3.90	41.23		74.00	54.00	-12.77	Peak
7323.0									
9764.0									
12205.0									
14646.0									
17087.0									
19528.0									
21969.0									
24410.0									

Remark :

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency °
- (2) Datas of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column °
- (4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	TX CH Mid	Test Date	Jul. 04, 2006
Fundamental Frequency	2441 MHz	Test By	Danny
Temperature	25 °C	Pol	Ver.
Humidity	65 %		

	Peak	AV		Actu	al FS	Peak	AV		
Freq.	Reading	Reading	Ant./CL	Peak	AV	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	_
1624.0	50.59		-5.57	45.02		74.00	54.00	-8.98	Peak
4881.0	38.32		4.09	42.41		74.00	54.00	-11.59	Peak
7323.0									
9764.0									
12205.0									
14646.0									
17087.0									
19528.0									
21969.0									
24410.0									

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency \circ
- (2) Datas of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column °
- (4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	TX CH Mid	Test Date	Jul. 04, 2006
Fundamental Frequency	2441 MHz	Test By	Danny
Temperature	25 °C	Pol	Hor.
Humidity	65 %		

	Peak	AV		Actu	al FS	Peak	AV		
Freq.	Reading	Reading	Ant./CL	Peak	AV	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	_
1344.5	43.15		-6.57	36.58		74.00	54.00	-17.42	Peak
1624.0	57.40		-5.57	51.83		74.00	54.00	-2.17	Peak
4881.0	37.69		4.09	41.78		74.00	54.00	-12.22	Peak
7323.0									
9764.0									
12205.0									
14646.0									
17087.0									
19528.0									
21969.0									
24410.0									

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency °
- (2) Datas of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column °
- (4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	TX CH High	Test Date	Jul. 04, 2006
Fundamental Frequency	2480 MHz	Test By	Danny
Temperature	25 °C	Pol	Ver.
Humidity	65 %		

	Peak	AV		Actu	al FS	Peak	AV		
Freq.	Reading	Reading	Ant./CL	Peak	AV	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	_
1650.0	52.66		-5.47	47.19		74.00	54.00	-6.81	Peak
4960.0	41.07		4.31	45.38		74.00	54.00	-8.62	Peak
7323.0									
9764.0									
12205.0									
14646.0									
17087.0									
19528.0									
21969.0									
24410.0									

Remark :

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency •
- (2) Datas of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column °
- (4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode Fundamental Frequency	TX CH High	Test Date Test By	Jul. 04, 2006
Temperature	2480 MHZ 25 °C	Pol	Danny Hor.
Humidity	65 %		

	Peak	AV		Actu	al FS	Peak	AV		
Freq.	Reading	Reading	Ant./CL	Peak	AV	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	_
1344.5	42.46		-6.57	35.89		74.00	54.00	-18.11	Peak
1650.0	57.80		-5.47	52.33		74.00	54.00	-1.67	Peak
4960.0									
7323.0									
9764.0									
12205.0									
14646.0									
17087.0									
19528.0									
21969.0									
24410.0									

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency °
- (2) Datas of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column °
- (4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.