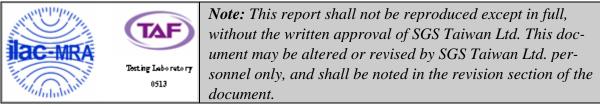


ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

OF

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART E REQUIREMENT

	01 ^r
Product Name:	PDA Phone
Brand Name:	Sony
Туре No.:	PM-0732-BV
Model Difference:	N/A
FCC ID:	PY7PM-0732
Report No.:	EH/2014/10053
Issue Date:	Mar. 21, 2014
FCC Rule Part:	§15.407
Prepared for:	Sony Mobile Communications AB Nya Vattentornet 22188 Lund/Sweden
Prepared by:	SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803
and a line of the	<i>Note:</i> This report shall not be reproduced except in full.



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VERIFICATION OF COMPLIANCE

Applicant:	Sony Mobile Communications AB
	Nya Vattentornet 22188 Lund/Sweden
Product Name:	PDA Phone
Brand Name:	Sony
Type No.:	PM-0732-BV
Model Difference:	N/A
FCC ID:	PY7PM-0732
File Number:	EH/2014/10053
Date of test:	Jan. 27, 2014 ~ Mar. 21, 2014
Date of EUT Received:	Jan. 27, 2014

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4:2009 & ANSI C63.10: 2009 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 15.407. The test results of this report relate only to the tested sample identified in this report.

Test By:	Marcus Tseng	Date:	Mar. 21, 2014
Prepared By:	Marcus Tseng / Engineer Tiffany Kao	Date:	Mar. 21, 2014
Approved By:	Tiffany Kao / Clerk Tim Ch ang	Date:	Mar. 21, 2014

Jim Chang / Supervisor

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Revision History

Report Number	Revision	Description	Issue Date
EH/2014/10053	Rev.00	Initial creation of document	Mar. 21, 2014

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GENERAL INFORMATION 1.

1.1. Product Description

General:

Product Name:	PDA Phone		
Brand Name:	Sony		
Type No.:	PM-0732-1	BV	
Model Difference:	N/A		
Data Cable (USB):	 Model No.: EC450, Supplier: K-one Type No.: AI-0700, Length: 100 cm Model No.: EC801, Supplier: Sony 		
Simple Hands-Free (SHF-White):		AI-0401, Length: 100 cm : MH410c, Supplier: Foster Electric AG-1100	
Simple Hands-Free (SHF-Black):		: MH410c, Supplier: Foster Electric CCA-0004017	
Car Charger:	Model No.: AN400, Supplier: Salcomp Type No.: CAA-0003013		
Hi-Fi Wireless Headset:	Model No.: MW600, Supplier: BALDA Type No.: DDA-0002029.B coupling with Simple Hands Free (Model No.: MH755, Supplier: BALDA Type No.: AG-0502)		
Hardware Version:	А		
Software Version:	18.2.A.0.9		
	3.8Vdc		
	Battery:	Model No.: LIS1546ERPC, Supplier: Sony Type No.: N/A	
Power Supply:	Adapter:	1.Model No.: EP800, Supplier: Salcomp Type No.: CAA-0002016-US	
		2.Model No.: EP880, Supplier: Salcomp Type No.: AC-0400-US	

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Bluetooth_BR+EDR:

Bluetooth Version:	V3.0+HS
Channel number:	79 channels
Modulation type:	Frequency Hopping Spread Spectrum
Transmit Power:	10.12dBm
Frequency Range:	2.402GHz – 2.480GHz
Dwell Time:	<= 0.4s
Antenna Designation:	PIFA Antenna, Gain: -1.34dBi

Bluetooth Low Energy:

Frequency Range:	2402 – 2480MHz		
Bluetooth Version:	V4.0 Dual mode		
Channel number:	40 channels		
Modulation type:	GFSK		
Transmit Power:	1.79dBm (Peak)		
Antenna Designation:	PIFA Antenna, Gain: -1.34dBi		

NFC:

Operating Frequency	13.56MHz	
Transmit Power	< 123dBuV/m at 3m.	
Number of Channels	1	
Antenna Type	Loop Antenna	
Modulation Type	ASK, BPSK	

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ANT Plus:

Operating Frequency:	2402 – 2480MHz		
Transmit Power:	102.10dBuV/m		
Number of Channels:	79		
Antenna Type:	PIFA Antenna, Gain: -1.34dBi		
Modulation Type:	GFSK		

WLAN 2.4GHz+5.7GHz:

Wi-Fi	Frequency Range	Channels	Rated Power	Modulation Technology		
11b/g	2412-2462	11	b: 20.40dBm g: 21.93dBm	DSSS, OFDM		
11n	HT20 2412-2462	11	HT20: 20.89dBm	OFDM		
11a	5725-5850	5	a: 20.66dBm			
11n (5GHz)	HT20 5725-5850	5	HT20: 19.89dBm	OFDM		
11n (5GHz)	HT40 5725-5850	2	HT40: 19.07dBm			
Antenna	Designation:	PIFA Antenna, 2.4GHz Gain: -1.34dBi 5GHz Gain: 4.51dBi (5725MHz-5850MHz)				
Modulati	on type:	CCK, DQPSK, DBPSK for DSSS				
Transitio	n Rate:	64QAM, 16QAM, QPSK, BPSK for OFDM 802.11 a: 6/9/12/18/24/36/48/54 Mbps 802.11 b: 1/2/5.5/11 Mbps 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 65.0Mbps 802.11 n_40MHz: 13.5 – 135.0Mbps				

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WLAN 5GHz:

Wi-Fi	Frequency Range	Channels	Rated Power (Avg)	Modulation Technology		
	5150~5250	4	13.98dBm			
11a	5250~5350	4	13.99dBm	OFDM		
	5470~5725	8	13.99dBm			
	HT20 5150~5250	4	HT20: 11.49dBm			
11n	HT20 5250~5350	4	HT20: 11.49dBm	OFDM		
	HT20 5470~5725	8	HT20: 11.48dBm			
	HT40 5150~5250	2	HT40: 10.48dBm			
11n	HT40 5250~5350	2	HT40: 10.46dBm	OFDM		
	HT40 5470~5725	3	HT40: 10.49dBm			
Antenna I	Antenna Designation		PIFA Antenna, 5GHz Gain: -0.38dBi (5150MHz-5250MHz) 5GHz Gain: 0.10dBi (5250MHz-5350MHz) 5GHz Gain: 3.98dBi (5470MHz-5725MHz)			
Modulation type		64QAM, 16QAM, QPSK, BPSK for OFDM				
Transition	n Rate:	802.11 n_20	9/12/18/24/36/48)MHz: 6.5 – 65.0)MHz: 13.5 – 13:	Mbps		

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GSM / WCDMA:

	Operating Frequency		Rated Power		
	GSM/GPRS 850, Class 12	824.2 MHz- 848.8 MHz	33dBm		
	EDGE 850, Class 12	824.2 MHz- 848.8 MHz	27dBm		
Cellular Phone Stand-	GSM/GPRS 1900, Class 12	1850.2MHz - 1909.8MHz	30dBm		
ards Frequency Range	EDGE 1900, Class 12	1850.2MHz - 1909.8MHz	26dBm		
and Power.	WCDMA/HSUPA/HSDPA /HSPA+ Band II	1852.4MHz – 1907.6MHz	24dBm		
	WCDMA/HSUPA/HSDPA /HSPA+ Band IV	1712.4MHz - 1752.6MHz	24dBm		
	WCDMA/HSUPA/HSDPA /HSPA+ Band V 826.4MHz - 846.6MHz		24dBm		
Type of Emission:	GSM 850: 249KGXW, GSM 1900: 255KGXW GPRS 850: 243KGXW, GPRS 1900: 254KGXW EDGE 850: 248KG7W, EDGE 1900: 251KG7W WCDMA Band II: 4M19F9W, WCDMA Band V: 4M18F9W HSDPA Band II: 4M18F9W, HSDPA Band V: 4M17F9W HSUPA Band II: 4M18F9W, HSUPA Band V: 4M18F9W				
IMEI:	004402146985134				

This report applies for frequency bands 5150 MHz- 5250 MHz, 5250MHz-5350MHz and 5470 MHz- 5725 MHz.

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IEEE 802.11n Spec:

MCS	MCS				NG	nna	NEEDE		Datarate(Mbps)			
Index	Nss	Modulation	R	NBPSC	NCBPS		NDBPS	800nsGI		400nsGI		
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5	7.200	15
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0	14.400	30
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5	21.700	45
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0	28.900	60
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0	43.300	90
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.800	120
6	1	64-QAM	3/4	6	312	648	234	486	58.5	121.5	65.000	135
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.200	150

Symbol	Explanation			
NSS	Number of spatial streams			
R	Code rate			
NBPSC	Number of coded bite per single carrier			
NCBPS	Number of coded bite per symbol			
NDBPS	Number of data bite per symbol			
GI	Guard interval			

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

This submittal(s) (test report) is intended for FCC ID: <u>PY7PM-0732</u> filing to comply with Section 15.407 of the FCC Part 15, Subpart C Rules. The composite system (digital device) is compliance with Subpart B is authorized under the certification procedure.

1.3. Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4:2009 & ANSI C63.10:2009 & KDB 789033 D01published on 04, 08, 2013. Radiated testing was performed at an antenna to EUT distance 3 meters.

Tested in accordance with FCC KDB789033 D01 for compliance to FCC 47CFR 15.407 requirements.

1.4. Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2009. & ANSI C63.10:2009. FCC Registration Number is: 990257. Canada Registration Number: 4620A-4.

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 29, Pau-Tou-Tsuo Valley Chia-Pau Tsuen, Linkou Hsiang, Taipei county, which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. SGS Site No. 1(3 &10 meters) and FCC Registration Number: 94644.

1.5. Special Accessories

There is no special accessories used while test was conducted.

1.6. Equipment Modifications

There was no modification incorporated into the EUT.

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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

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

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 general criterion in Section 7.1 of ANSI C63.4:2009 & 6.2 ANSI 63.10:2009.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz, and the measurement procedure 7.3 in ANSI 63.4:2009 & 6.2.2, and 6.2.3 in ANSI 63.10:2009 is followed to carry out the test. The CISPR Quasi-Peak and Average detector mode is employed according to §15.107

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 and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna according to the requirements in Section 8 and 13 and of ANSI C63.4:2009, & Section 6.3, 6.4, 6.5, and 6.6 of ANSI 63.10:2009.

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2.4. Configuration of Tested System

Fig. 2-1 Radiated Emission



Fig. 2-2 Conducted (Antenna Port) Configuration



Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	Notebook	DELL	E5400	3704625136	shielding	Un-shielding
2.	WLAN Test Software	QRCT	V5.3.62	N/A	N/A	N/A

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Fig. 2-3 AC Power Line Conducted Emission

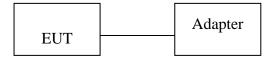


Table 2-2 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	WLAN Test Software	QRCT	V5.3.62	N/A	N/A	N/A

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SUMMARY OF TEST RESULT 3.

FCC Rules	Description Of Test	Result
§15.207	AC Power Line Conducted	Compliant
	Emission	
§15.407(a) (1) (2)	26 dB Emission	Compliant
	Bandwidth	
§15.407(a) (1) (2)	The Maximum Output Pow-	Compliant
	er Measurement	
§15.407(a) (5)	Peak Power Spectral Density	Compliant
	Measurement	
15.407(a)(6)	Peak Excursion Measurement	Compliant
§15.407(b) (1) (2) (3)	Undesirable Emission – Con-	Compliant
	ducted Measurement	
§15.407(b) (1) (2) (3)(6) (7)	Undesirable Emission – Radiated	Compliant
	Measurement	
§15.407(c)	Transmission in case of Absence	Compliant
	of Information	
§15.407(g)	Frequency Stability	Compliant
§15.203	Antenna Requirement	Compliant

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4. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting mode is programmed.

a mode:

5150MHz-5250MHz: Channel lowest(5180MHz), Mid(5220MHz) and Highest(5240MHz). 5250MHz-5350MHz: Channel lowest(5260MHz), Mid(5300MHz) and Highest(5320MHz). 5470MHz-5725MHz: Channel lowest(5500MHz), Mid(5580MHz) and Highest(5700MHz) and with 6Mbps data rate are chosen for full testing.

n HT 20 mode:

5150MHz-5250MHz: Channel lowest(5180MHz), Mid(5220MHz) and Highest(5240MHz).
5250MHz-5350MHz: Channel lowest(5260MHz), Mid(5300MHz) and Highest(5320MHz).
5470MHz-5725MHz: Channel lowest(5500MHz), Mid(5580MHz) and Highest(5700MHz)with 6.5Mbps data rate are chosen for full testing

n HT 40 mode: 5150MHz-5250MHz: Channel lowest (5190MHz) and Highest (5230MHz). 5250MHz-5350MHz: Channel lowest (5270MHz) and Highest (5310MHz). 5470MHz-5725MHz: Channel lowest(5510MHz) Mid(5550MHz) and Highest(5670MHz)with 13.5Mbps data rate are chosen for full testing

The worst case is determined by the output power that generates the highest emission. As examined in the section of output power measurement, the section 7.5, the lowest data rate at a/b/g/n_HT20/n_HT40 resulted the highest level of fundamental emission, and therefore, the lowest data rate is chosen as the worst-case to conduct the remaining of other mandatory test cases.

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11a/n WLAN Transmitter for channel Low, Mid and High, the worst case H position was reported.

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Remark: While conducting average power measurement, duty cycle of each mode ($a/n_ht20/n_ht40$) shall be greater than 98%. All duty cycle is pre-scanned, but verified to be greater than 98%, where a = 99% and $n_HT20\&n_HT40 = 99\%$, where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage. *Formula:*

Duty Cycle = *Ton* / (*Ton*+*Toff*)

Test Procedure:

Set span = 0, RBW = 8MHz, the largest as possible, VBW = 8MHz, Detector = Peak, and RBW, and VBW = 8MHz where zero-span is permissible, that > 50/T, where T is ~ 4.3ms

Duty Cycle:

	UNII Band 1	UNII Band 2 – Subband1	UNII Band 2 – Subband2
802.11a	0.99	0.99	0.99
802.11n_20	0.99	0.99	0.99
802.11n_40	0.99	0.99	0.99

Duty Cycle Factor: $10 * \log (1/0.99) = 0.04$

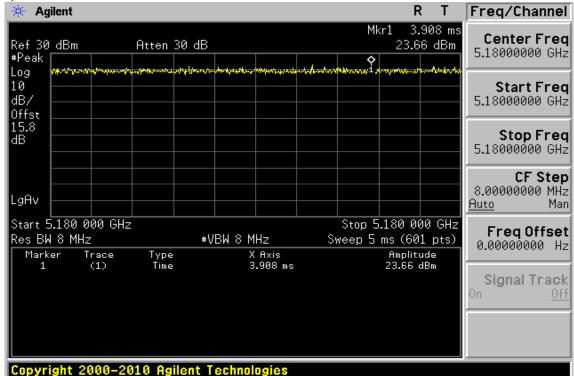
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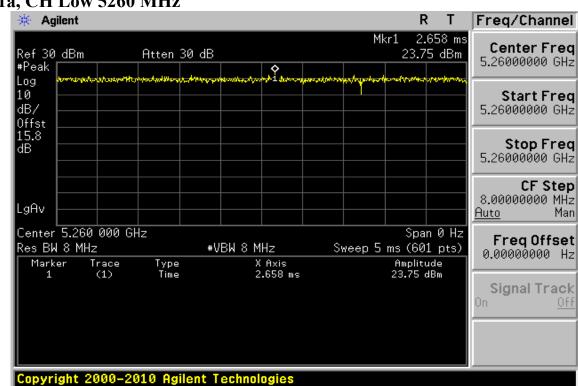
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DUTY CYCLE OF TEST SIGNAL 802.11a, CH Low 5180 MHz





802.11a. CH Low 5260 MHz

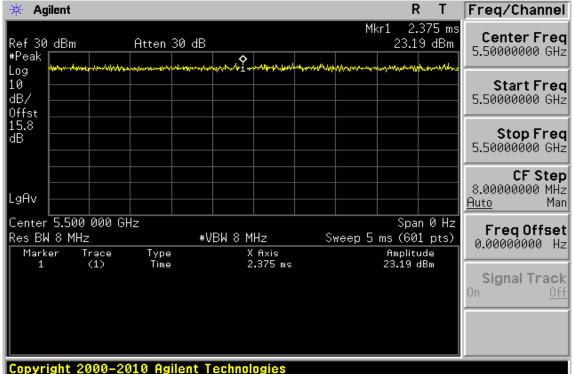
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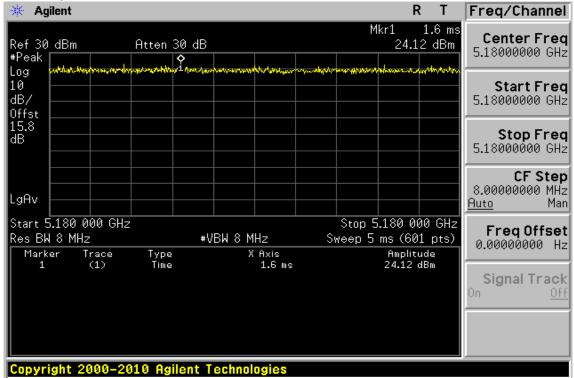
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802.11a, CH Low 5500 MHz



802.11n HT20, CH Low 5180 MHz



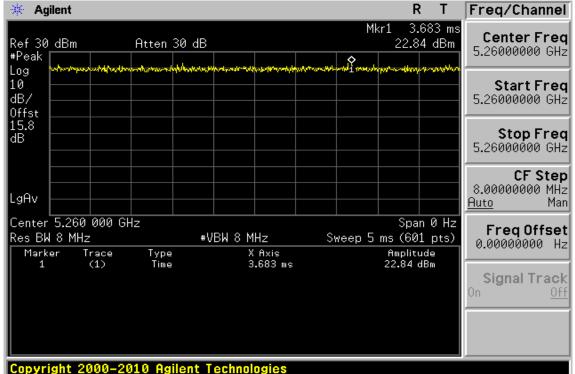
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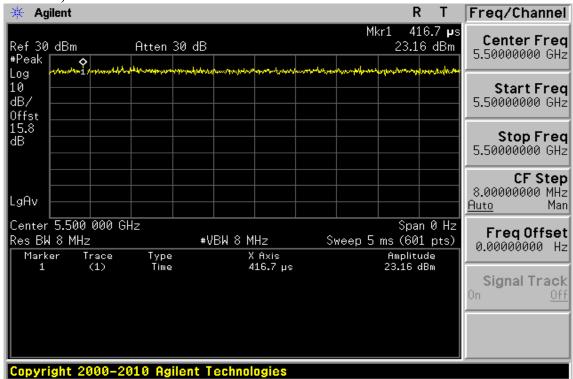
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802.11n HT20, CH Low 5260 MHz



802.11n HT20, CH Low 5500 MHz



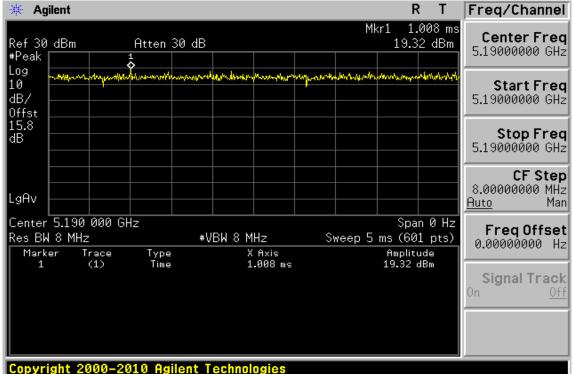
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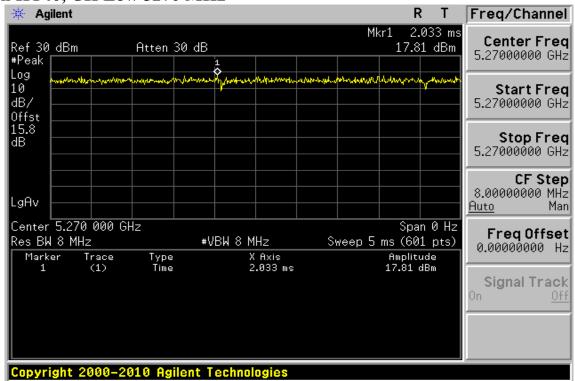
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802.11n HT40, CH Low 5190 MHz



802.11n HT40, CH Low 5270 MHz



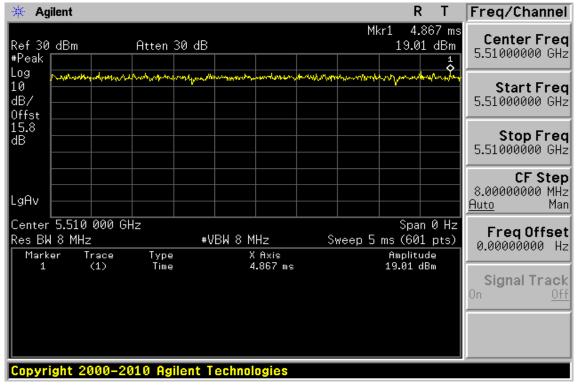
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802.11n HT40, CH Low 5510 MHz



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5. **MEASUREMENT UNCERTAINTY**

Test Items	Uncertainty	
AC Power Line Conducted Emission	+/- 2.586 dB	
26 dB and 99% Emission Bandwidth	+/- 123.36 Hz	
The Maximum Output Power Measurement	+/- 1.42 dB	
Peak Power Spectral Density Measurement	+/- 1.55 dB	
Peak Excursion Measurement	+/- 1.55 dB	
Undesirable Emission –	+/- 1.55 dB	
Conducted Measurement		
Transmission in case of Absence of Information	+/- 1.55 dB	
Frequency Stability	+/- 123.36 Hz	
Temperature	+/- 0.8 °C	
Humidity	+/- 4.7 %	
DC / AC Power Source	DC= +/- 1%, AC=+/- 0.2%	

Radiated Spurious Emission:

Measurement uncertainty	30MHz - 180MHz: +/- 3.37dB
	180MHz -417MHz: +/- 3.19dB
(Polarization : Vertical)	0.417GHz-1GHz: +/- 3.19dB
	1GHz - 18GHz: +/- 4.04dB
	18GHz - 40GHz: +/- 4.04dB

	30MHz - 167MHz: +/- 4.22dB
Measurement uncertainty	167MHz -500MHz: +/- 3.44dB
(Polarization : Horizontal)	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

This uncertainty represents an expanded uncertainty expressed at approximately the

95% confidence level using a coverage factor of k=2.

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6. **CONDUCTED EMISSION TEST**

6.1. Standard Applicable

According to §15.207, frequency range within 150 KHz to 30 MHz shall not exceed the Limit table as below.

Frequency range	Limits dB(uV)					
MHz	Quasi-peak	Average				
0.15 to 0.50	66 to 56	56 to 46				
0.50 to 5	56	46				
5 to 30	60	50				
Note						
1. The lower limit shall apply at the transition frequencies						
2. The limit decreases linearly with t	2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.					

6.2. Measurement Equipment Used:

Conducted Emission Test Site								
EQUIPMENT	EQUIPMENT MFR MODEL SERIAL							
ТҮРЕ		NUMBER	NUMBER	CAL.				
EMI Test Receiver	R&S	ESCI7	100760	05/27/2013	05/26/2014			
LISN	Rolf-Heine	NNB-2/16Z	99012	03/23/2013	03/22/2014			
LISN	FCC	FCC-LISN-50/250-25-2-01	04034	03/23/2013	03/22/2014			
Coaxial Cables	N/A	WK CE Cable	N/A	11/26/2013	11/25/2014			

6.3. EUT Setup

- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4:2009 & ANSI C63.10:2009.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
- 3. The LISN was connected with 120Vac/60Hz power source.

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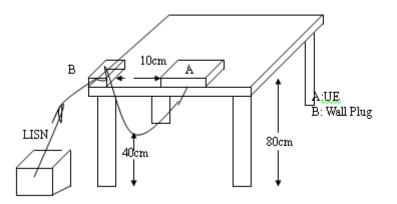
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6.4. Test SET-UP (Block Diagram of Configuration)



6.5. Measurement Procedure

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all phases of power being supplied by given UE are completed

6.6. Measurement Result

Note: Refer to next page for measurement data and plots.

Note2: The * reveals the worst-case results that that closet to the limit

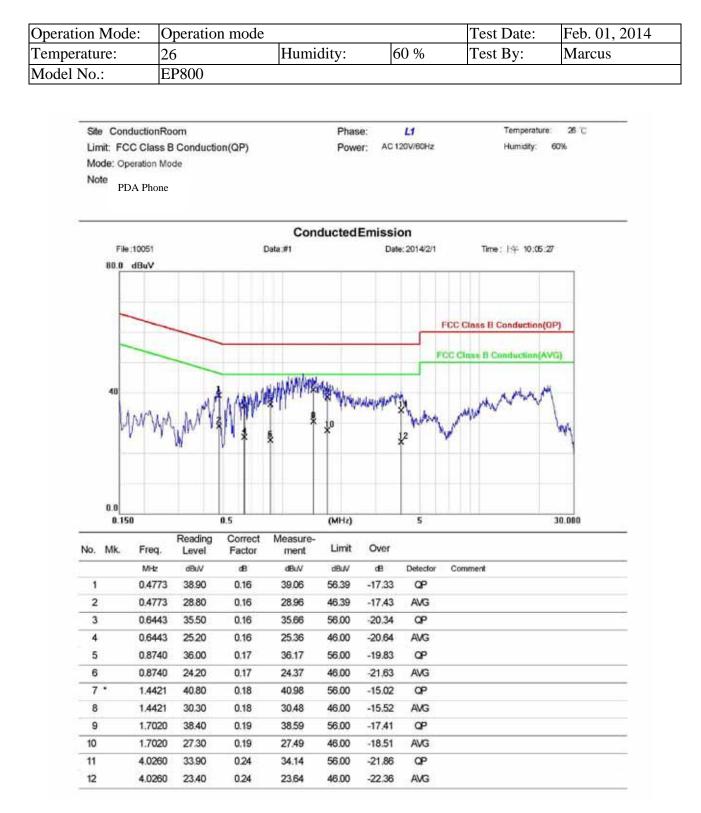
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AC POWER LINE CONDUCTED EMISSION TEST DATA



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台灣檢驗科技股份有限公司	t (886-2) 2299-3279	f (886-2) 2298-0488	www.tw.sgs.com



25 T Site ConductionRoom Phase: N Temperature: Limit: FCC Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 60% Mode: Operation Mode Note: PDA Phone **ConductedEmission** File:10051 Data:#2 Date: 2014/2/1 Time: 上午 10:14:04 80.0 dBuV FCC Class B Conduction(QP) s B Condu FCC Cla HINA AN 0.0 (MHz) 5 30.000 0.150 0.5 Deading Correct 1.40

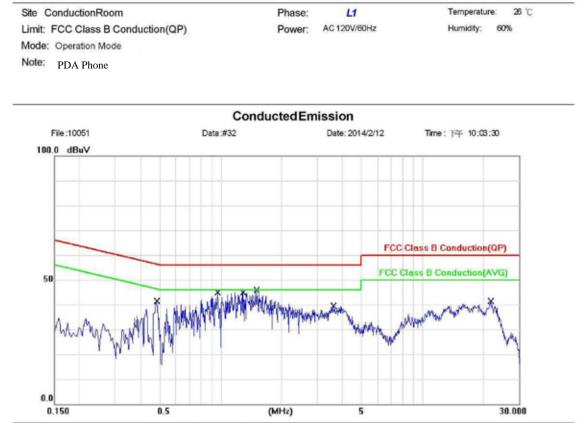
Mk.	Freq.	Reading Level	Factor	ment	Limit	Over			
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
	0.1580	29.80	0.18	29.98	65.57	-35.59	QP		
	0.1580	14.00	0.18	14.18	55.57	-41.39	AVG		
	0.4740	30.50	0.19	30,69	56.44	-25.75	QP		
	0.4740	21.50	0.19	21.69	46.44	-24.75	AVG		
	0.9620	33.90	0.21	34.11	56.00	-21.89	QP		
	0.9620	22.00	0.21	22.21	46.00	-23.79	AVG		
•	1.3380	35.20	0.21	35.41	56.00	-20.59	QP		
	1.3380	22.50	0.21	22.71	46.00	-23.29	AVG		
	19.1940	34.20	0.52	34.72	60.00	-25.28	QP		
	19.1940	21.20	0.52	21.72	50.00	-28.28	AVG		
	22,3940	36.40	0.54	36.94	60.00	-23.06	QP		
	22.3940	20.50	0.54	21.04	50.00	-28.96	AVG		
		MHz 0.1580 0.1580 0.4740 0.9620 0.9620 1.3380 1.3380 19.1940 19.1940 22.3940	Mk. Freq. Level MHz dBi/V 0.1580 29.80 0.1580 14.00 0.4740 30.50 0.4740 21.50 0.9620 33.90 0.9620 22.00 * 1.3380 35.20 19.1940 34.20 22.3940 36.40	Mk. Freq. Level Factor MHz dBuV dB 0.1580 29.80 0.18 0.1580 14.00 0.18 0.4740 30.50 0.19 0.4740 21.50 0.19 0.9620 33.90 0.21 0.9620 22.00 0.21 1.3380 35.20 0.21 1.3380 22.50 0.21 19.1940 34.20 0.52 19.1940 21.20 0.52 22.3940 36.40 0.54	Mk. Freq. Level Factor ment MHz dBuV dB dBuV 0.1580 29.80 0.18 29.98 0.1580 14.00 0.18 14.18 0.4740 30.50 0.19 30.69 0.4740 21.50 0.19 21.69 0.9620 33.90 0.21 24.11 0.9620 22.00 0.21 22.21 * 1.3380 35.20 0.21 22.71 1.3380 22.50 0.21 22.71 19.1940 34.20 0.52 34.72 19.1940 21.20 0.52 21.72 22.3940 36.40 0.54 36.94	Mk. Freq. Level Factor ment Limit MHz dBuV dB dBuV d	Mk. Freq. Level Factor ment Limit Over MHz dBuV dB dBuV dBuV dB dBuV dB <	Mk. Freq. Level Factor ment Limit Over MHz dBuV dB dBuV dUV dUV dUV	Mk. Freq. Level Factor ment Limit Over MHz dBuV dB dBuV dBuV dB Detector Comment 0.1580 29.80 0.18 29.98 65.57 -35.59 QP 0.1580 14.00 0.18 14.18 55.57 -41.39 AVG 0.4740 30.50 0.19 30.69 56.44 -25.75 QP 0.4740 21.50 0.19 21.69 46.44 -24.75 AVG 0.9620 33.90 0.21 34.11 56.00 -21.89 QP 0.9620 22.00 0.21 22.21 46.00 -23.79 AVG 1.3380 35.20 0.21 35.41 56.00 -23.29 QP 1.3380 25.20 0.21 22.71 46.00 -23.29 AVG 19.1940 34.20 0.52 34.72 60.00 -25.28 QP 19.1940 34.20

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Operation Mode:	Operation mode			Test Date:	Feb. 01, 2014
Temperature:	26	Humidity:	60 %	Test By:	Marcus
Model No.:	EP880				



No. I	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1		0.4800	39.50	0.16	39.66	56.34	-16.68	QP		
2		0.4800	29.90	0.16	30.06	46.34	-16.28	AVG		
3		0.9651	39.90	0.17	40.07	56.00	-15.93	QP		
4		0.9651	29.80	0.17	29.97	46.00	-16.03	AVG		
5		1.2913	41.00	0.18	41.18	56.00	-14.82	QP		
6		1.2913	30.60	0.18	30.78	46.00	-15.22	AVG		
7	•	1.5052	41.10	0.19	41.29	56.00	-14.71	QP		
8		1.5052	30.20	0.19	30.39	46.00	-15.61	AVG		
9		3.6325	33.00	0.23	33.23	56.00	-22.77	QP		
10		3.6325	21.80	0.23	22.03	46.00	-23.97	AVG		
11		21.7740	34.30	0.42	34.72	60.00	-25.28	QP		
12		21.7740	22.40	0.42	22.82	50.00	-27.18	AVG		

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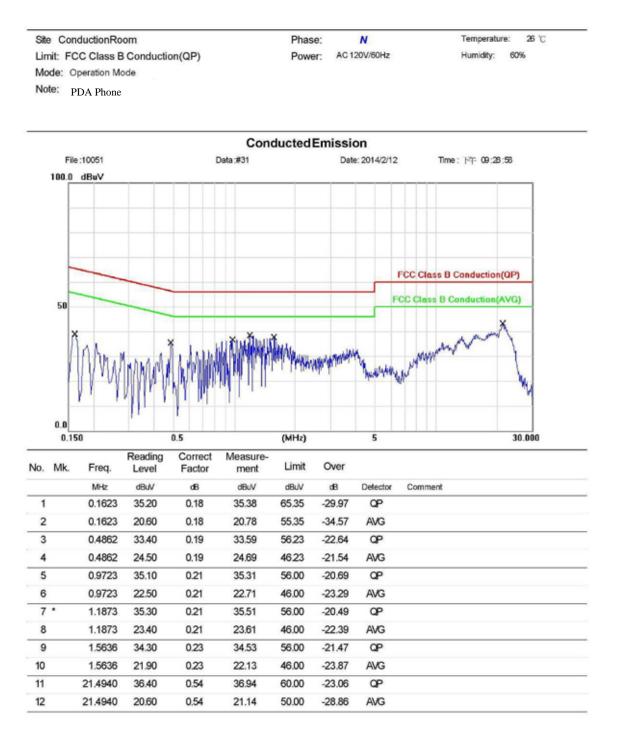
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台灣檢驗科技股份有限公司	t (886-2) 2299-3279	f (886-2) 2298-0488	www.tw.sgs.com	



7. 26dB EMISSION BANDWIDTH MEASUREMENT

7.1 Standard Applicable

According to §15.407(a). No Limit required.

7.2 Measurement Procedure

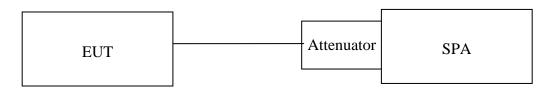
- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the Antenna port to the spectrum analyzer.
- 3.
- a. 26dB Band width Measurement: Set the spectrum analyzer as 1% of emission BW Sweep=auto, Detector = Peak, Trace Mode = Max Hold, Manually readjust RBW until the RBW/EBW ratio is 1% based on EBW as observed on the result of pre-sequence measurement.
- 4. Repeat the procedures as list above until all test default channels (low, middle, and high) are completed.

Conducted Emission Test Site					
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
ТҮРЕ		NUMBER	NUMBER	CAL.	
Power Meter	Anritsu	ML2495A	1005007	01/13/2014	01/12/2015
Power Sensor	Anritsu	MA2411B	917032	01/13/2014	01/12/2015
Spectrum Analyzer	Agilent	E4446A	MY51100003	05/30/2013	05/29/2014
Spectrum Analyzer	Agilent	E4440A	MY45304525	03/15/2013	03/14/2014
DC Block	Mini-Circuits	BLK-18-S+	1	02/28/2013	02/27/2014
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/03/2014	01/02/2015
Attenuator	Mini-Circuit	BW-S10W2+	002	02/28/2013	02/27/2014
Splitter	Agilent	11636B	N/A	02/28/2013	02/27/2014

7.3 Measurement Equipment Used:

7.4 Test Set-up:

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7.5 Measurement Result

26dB Bandwidth

802.11a, 5150~5250 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5180	23.655	13.74
5220	22.326	13.49
5240	23.504	13.71

802.11a, 5250~5350 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5260	22.867	13.59
5300	21.743	13.37
5320	21.580	13.34

802.11a, 5470~5725 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5500	27.700	14.42
5580	30.512	14.84
5700	31.091	14.93

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802.11n HT20, 5150~5250 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5180	21.902	13.40
5220	22.022	13.43
5240	22.068	13.44

802.11n HT20, 5250~5350 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5260	22.336	13.49
5300	22.442	13.51
5320	22.357	13.49

802.11n HT20, 5470~5725 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5500	22.224	13.47
5580	22.054	13.43
5700	22.457	13.51

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802.11n HT40, 5150~5250 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5190	42.555	16.29
5230	42.702	16.30

802.11n HT40, 5250~5350 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5270	43.091	16.34
5310	43.507	16.39

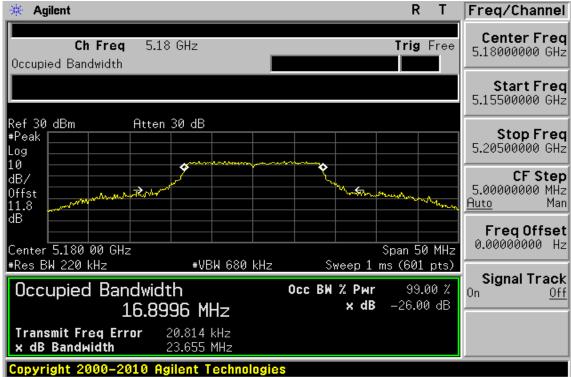
802.11n HT40, 5470~5725 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5510	43.139	16.35
5550	43.157	16.35
5670	43.134	16.35

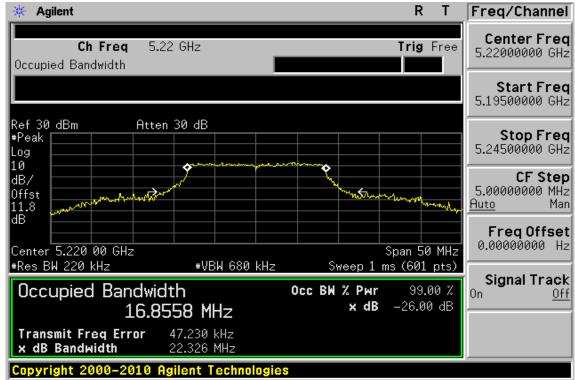
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802.11a, 5150~5250 MHz 26dB Band Width Test Data CH-Low (5180MHz)



26dB Band Width Test Data CH-Mid (5220MHz)



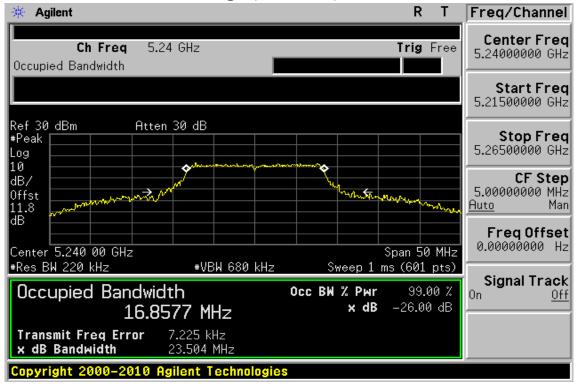
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26dB Band Width Test Data CH-High (5240MHz)

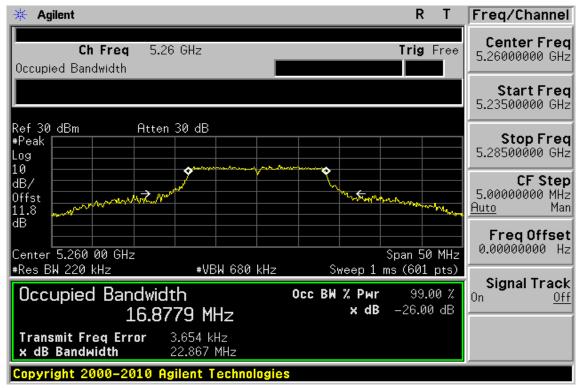


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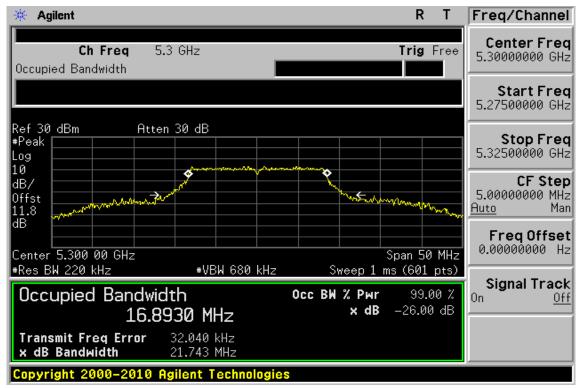
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802.11a, 5250~5350 MHz 26dB Band Width Test Data CH-Low (5260MHz)



26dB Band Width Test Data CH-Mid (5300MHz)



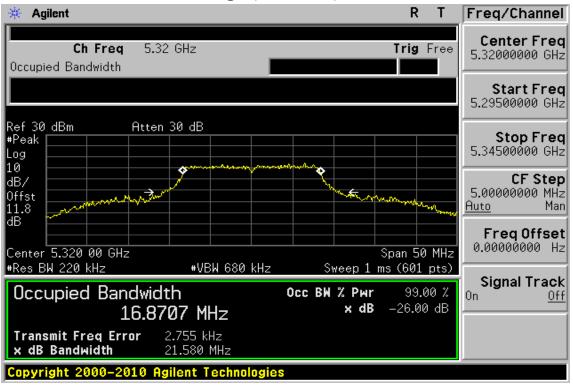
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26dB Band Width Test Data CH-High (5320MHz)

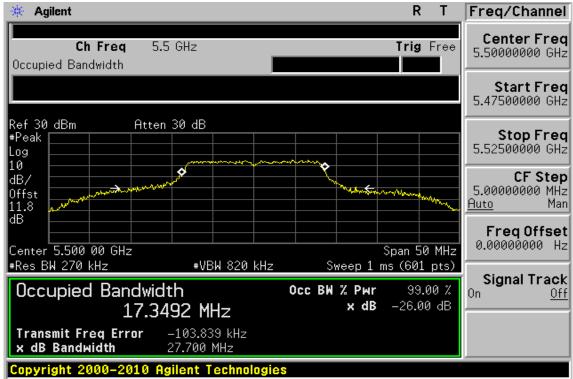


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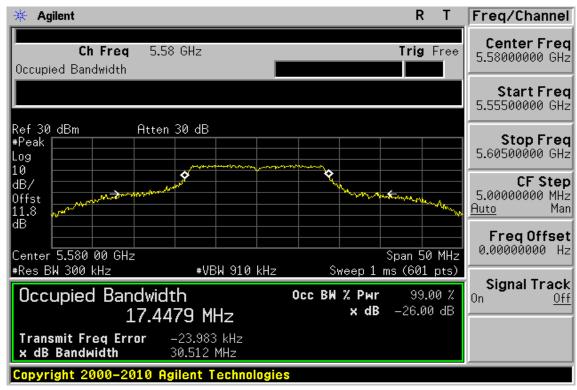
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802.11a, 5470~5725 MHz 26dB Band Width Test Data CH-Low (5500MHz)



26dB Band Width Test Data CH-Mid (5580MHz)



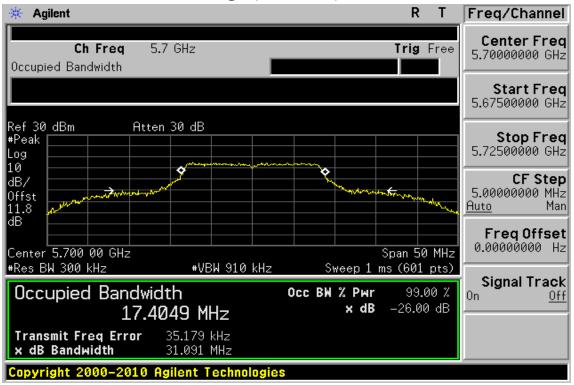
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26dB Band Width Test Data CH-High (5700MHz)

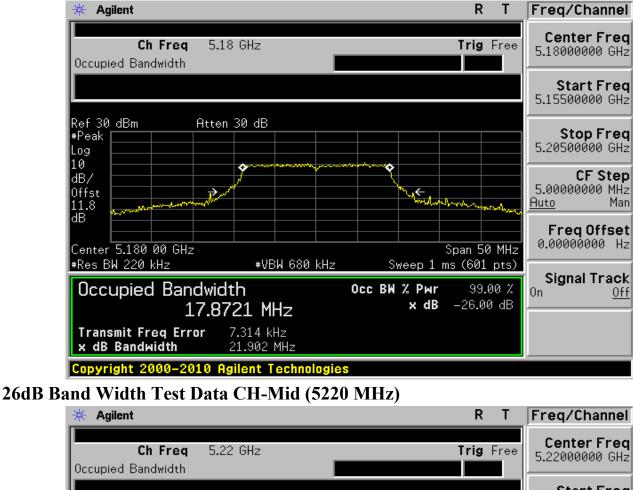


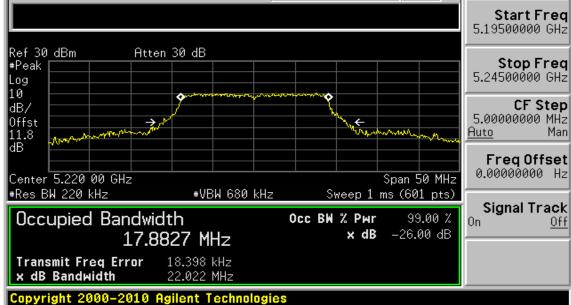
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802.11n HT20, 5150~5250 MHz 26dB Band Width Test Data CH-Low (5180 MHz)





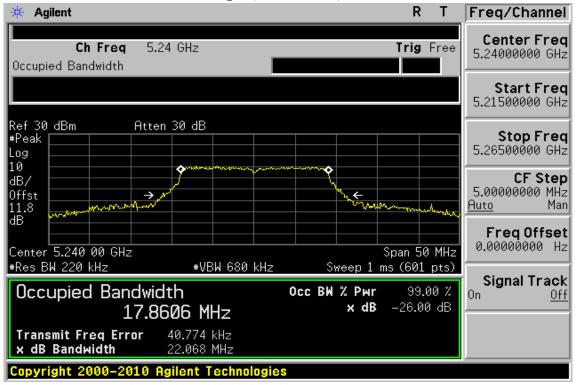
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26dB Band Width Test Data CH-High (5240 MHz)

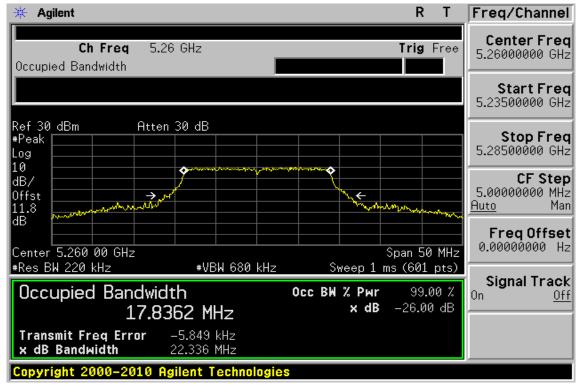


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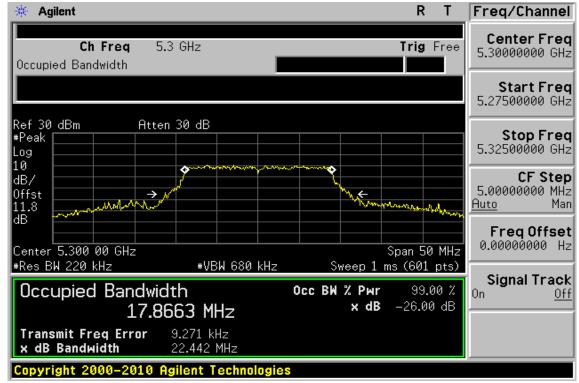
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802.11n HT20, 5250~5350 MHz 26dB Band Width Test Data CH-Low (5260 MHz)



26dB Band Width Test Data CH-Mid (5300 MHz)



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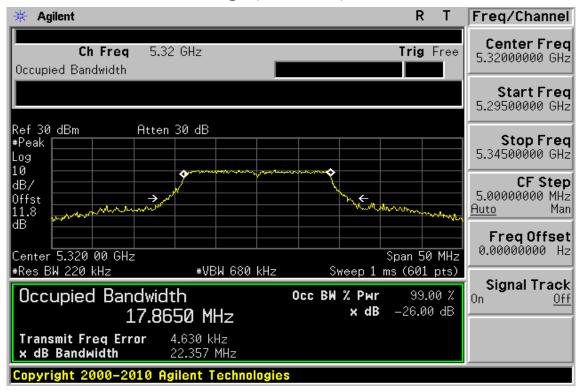
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26dB Band Width Test Data CH-High (5320 MHz)

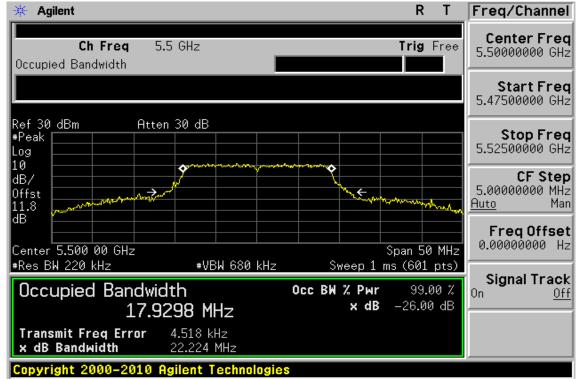


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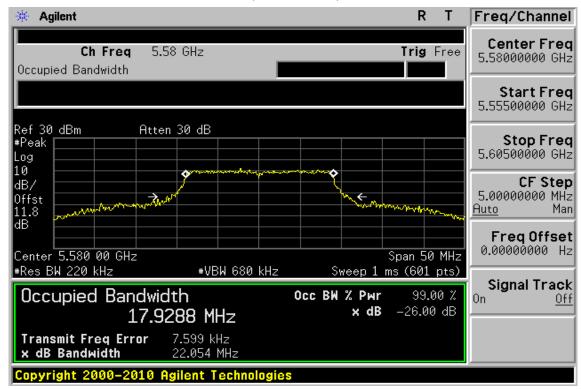
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802.11n HT20, 5470~5725 MHz 26dB Band Width Test Data CH-Low (5500 MHz)



26dB Band Width Test Data CH-Mid (5580 MHz)



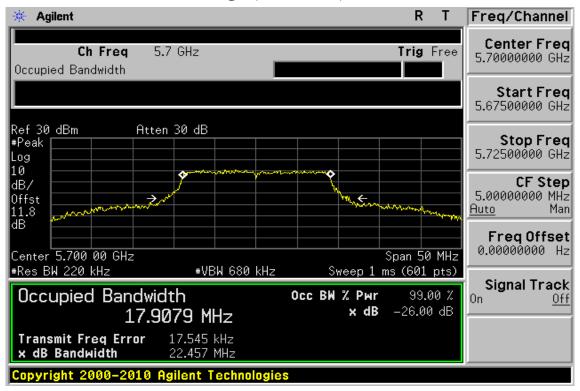
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26dB Band Width Test Data CH-High (5700 MHz)

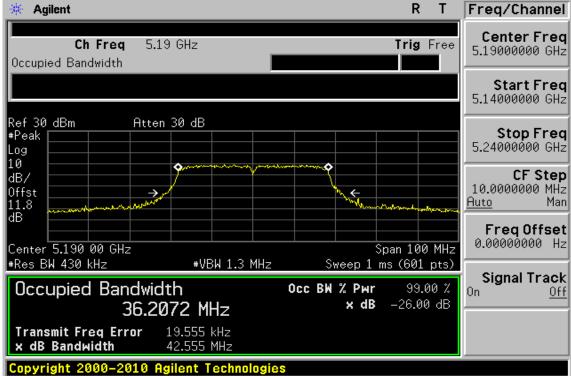


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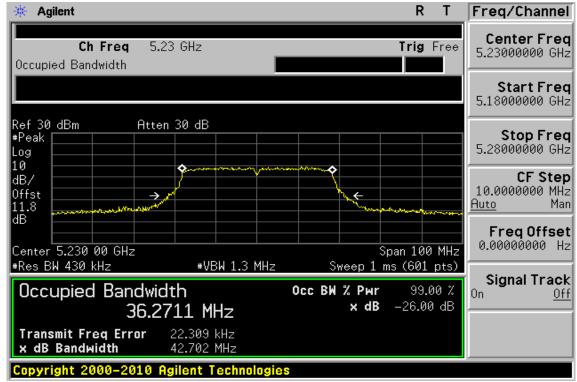
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802.11n HT40, 5150~5250 MHz 26dB Band Width Test Data CH-Low (5190 MHz)



26dB Band Width Test Data CH-High (5230 MHz)



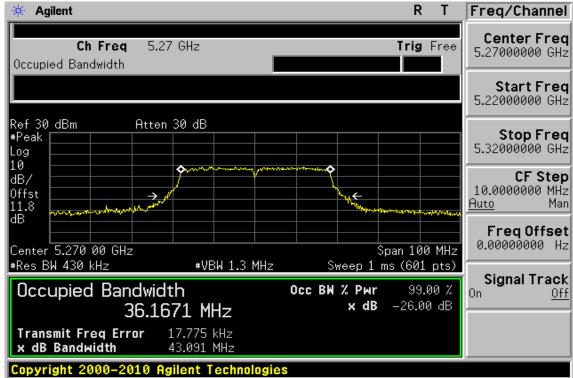
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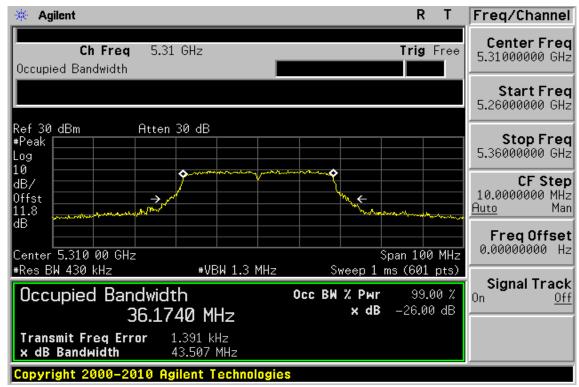
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802.11n HT40, 5250~5350 MHz 26dB Band Width Test Data CH-Low (5270 MHz)



26dB Band Width Test Data CH-High (5310MHz)



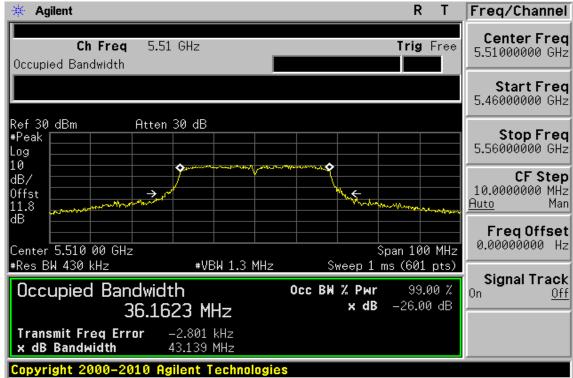
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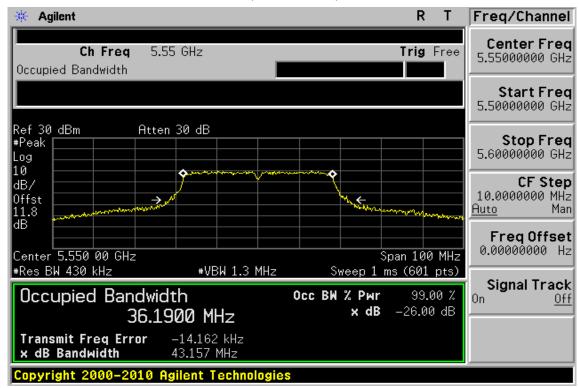
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802.11n HT40, 5470~5725 MHz 26dB Band Width Test Data CH-Low (5510 MHz)



26dB Band Width Test Data CH-Mid (5550 MHz)



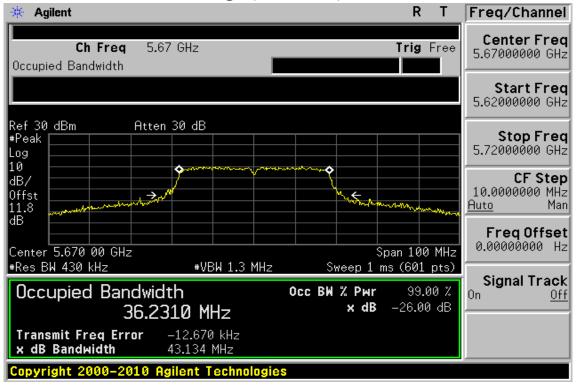
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26dB Band Width Test Data CH-High (5670 MHz)



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8. The MAXIMUM OUTPUT POWER MEASUREMENT

8.1 Standard Applicable

According to §15.407(a)

- 1. For the band 5.15-5.25 GHz, the maximum conducted power over the frequency of operation shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B.
- 2. For the band 5.25-5.35 GHz and 5.47-5.725GMHz, the maximum conducted power over the frequency of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log B.
- 3. For the band 5.725-5.825 GHz, the maximum conducted power over the frequency of operation shall not exceed the lesser of 1W (30dBm) or 17 dBm + 10log B.

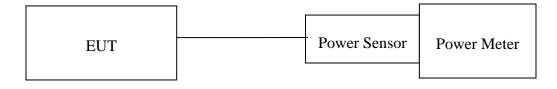
8.2 Measurement Procedure

- 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
- 3. Set the offset $10*\log(1/x)$ (x=0.99), 0.04 approximately
- 4. Record the max. reading.
- 5. Repeat above procedures until all frequency (low, middle, and high channel) measured were complete.

8.3 Measurement Equipment Used:

Refer to section 7.3 for details.

8.4 Test Set-up:



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8.5 Measurement Result

Cał	ble loss = 0			The	Maxi	mum O	utput l	Power		
СН	Frequency (MHz)				Data	Rate				Required Limit
	(141112)	6	9	12	18	24	36	48	54	Kequii eu Linnt
36	5180	13.98	13.88	13.86	13.78	13.64	13.50	13.43	13.35	16.99dBm or 4+10log(B) = 17.74dBm
44	5220	13.97	13.94	13.89	13.83	13.78	13.73	13.70	13.67	16.99dBm or 4+10log(B) = 17.49dBm
48	5240	13.96	13.92	13.86	13.78	13.76	13.64	13.60	13.50	16.99dBm or 4+10log(B) = 17.71dBm
52	5260	13.99	13.97	13.93	13.84	13.82	13.74	13.62	13.54	23.98dBm or 11+10log(B) = 24.59dBm
60	5300	13.90	13.83	13.77	13.71	13.65	13.61	13.57	13.51	23.98dBm or 11+10log(B) = 24.37dBm
64	5320	13.89	13.78	13.71	13.66	13.59	13.51	13.48	13.41	23.98dBm or 11+10log(B) = 24.34dBm
100	5500	13.99	13.97	13.91	13.85	13.80	13.74	13.67	13.61	23.98dBm or 11+10log(B) = 25.42dBm
116	5580	13.97	13.91	13.82	13.76	13.69	13.61	13.53	13.44	23.98dBm or 11+10log(B) = 25.84dBm
140	5700	10.94	10.90	10.88	10.83	10.70	10.61	10.54	10.47	23.98dBm or 11+10log(B) = 25.93dBm

Note: Limit is re-adjusted in terms of dBm

10*log(50mW) = 16.99dBm for the limit on the band of $5150\sim5250MHz$

10*log(250mW)=23.98dBm for the limit on the band of 5260~5320Mz, &5470~5725MHz

Note: Cable loss is 11.8dB is set as the offset on the spectrum to compensate the loss causing by cable

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802.11n HT20

Cat	ble loss $= 0$	The Maximum Output Power								
СН	Frequency (MHz)				Data	Rate				Required Limit
	(11112)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	Kequireu Emin
36	5180	11.49	11.45	11.41	11.36	11.23	11.18	11.11	11.07	16.99dBm or 4+10log(B) = 17.40dBm
44	5220	11.47	11.43	11.39	11.32	11.28	11.23	11.19	11.17	16.99dBm or 4+10log(B) = 17.43dBm
48	5240	11.48	11.38	11.30	11.26	11.18	11.09	11.05	10.94	16.99dBm or 4+10log(B) = 17.44dBm
52	5260	11.33	11.30	11.27	11.21	11.19	11.08	11.05	11.01	23.98dBm or 11+10log(B) = 24.49dBm
60	5300	11.49	11.42	11.37	11.31	11.26	11.22	11.16	11.11	23.98dBm or 11+10log(B) = 24.51dBm
64	5320	11.48	11.37	11.29	11.23	11.18	11.12	11.07	11.03	23.98dBm or 11+10log(B) = 24.49dBm
100	5500	11.48	11.41	11.35	11.26	11.20	11.14	11.09	11.00	23.98dBm or 11+10log(B) = 24.47dBm
116	5580	11.41	11.33	11.28	11.22	11.16	11.08	11.01	10.97	23.98dBm or 11+10log(B) = 24.43dBm
140	5700	8.24	8.15	8.11	8.04	7.97	7.90	7.77	7.71	23.98dBm or 11+10log(B) = 24.51dBm

Note: Offset 11.8dB

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802	2.11n HT40									
Cał	Cable loss = 0The Maximum Output Power									
СН	Frequency (MHz)	Data Rate							Required Limit	
	(11112)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	Kequireu Ennit
38	5190	10.48	10.37	10.23	10.18	10.09	10.03	9.94	9.85	16.99dBm or 4+10log(B) = 20.29dBm
46	5230	10.29	10.18	10.10	9.96	9.91	9.79	9.75	9.64	16.99dBm or 4+10log(B) = 20.30dBm
54	5270	10.34	10.27	10.23	10.15	10.08	10.01	9.95	9.89	23.98dBm or 11+10log(B) = 27.34dBm
62	5310	10.46	10.38	10.28	10.22	10.12	9.98	9.92	9.88	23.98dBm or 11+10log(B) = 27.39dBm
102	5510	10.48	10.33	10.27	10.20	10.15	10.11	10.08	10.02	23.98dBm or 11+10log(B) = 27.35dBm
110	5550	10.38	10.30	10.25	10.15	10.07	10.01	9.94	9.88	23.98dBm or 11+10log(B) = 27.35dBm
134	5670	10.49	10.44	10.40	10.37	10.30	10.24	10.18	10.05	23.98dBm or 11+10log(B) = 27.35dBm

Note: Offset 11.8dB

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9. PEAK POWER SPECTRAL DENSITY

9.1 Standard Applicable

According to §15.407(a)

- 1. For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band.
- 2. For the band 5.25-5.35 GHz and 5.47-5.725GMHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

9.2 Measurement Procedure (following procedure F, & E) d) method SA-2 in KDB789033 D01)

- 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 Spectrum.
- 3. Set RBW=1MHz, VBW=3MHz, Span=50MHz/80MHz (Base Mode), where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)
- 4. User the cursor on spectrum to peak search the highest level of trace
- 5. Add offset, duty factor = 0.04, on the spectrum
- 6. Record the max. reading.
- 7. Repeat above procedures until all default test channel (low, middle, and high) was complete.

9.3 Measurement Equipment Used:

Refer to section 7.3 for details.

9.4 Test Set-up:

Refer to section 7.4 for details.

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9.5 Measurement Result

802.11a, 5150~5250 MHz

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5180	-0.16	4.00	-4.16
5220	0.09	4.00	-3.91
5240	0.36	4.00	-3.65

802.11a, 5250~5350 MHz

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5260	0.14	11.00	-10.86
5300	0.37	11.00	-10.63
5320	0.34	11.00	-10.66

802.11a, 5470~5725 MHz

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5500	1.36	11.00	-9.64
5580	1.59	11.00	-9.41
5700	0.71	11.00	-10.30

Note: Offset 11.8dB

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802.11n HT20, 5150~5250 MHz

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5180	-1.97	4.00	-5.97
5220	-1.77	4.00	-5.77
5240	-1.95	4.00	-5.95

802.11n HT20, 5250~5350 MHz

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5260	-2.21	11.00	-13.21
5300	-1.65	11.00	-12.65
5320	-1.43	11.00	-12.43

802.11n HT20, 5470~5725 MHz

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5500	-0.83	11.00	-11.83
5580	-0.93	11.00	-11.93
5700	-1.56	11.00	-12.56

Note: Offset 11.8dB

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802.11n HT40, 5150~5250 MHz

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5190	-6.09	4.00	-10.09
5230	-6.57	4.00	-10.57

802.11n HT40, 5250~5350 MHz

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5270	-6.75	11.00	-17.75
5310	-5.89	11.00	-16.89

802.11n HT40, 5470~5725 MHz

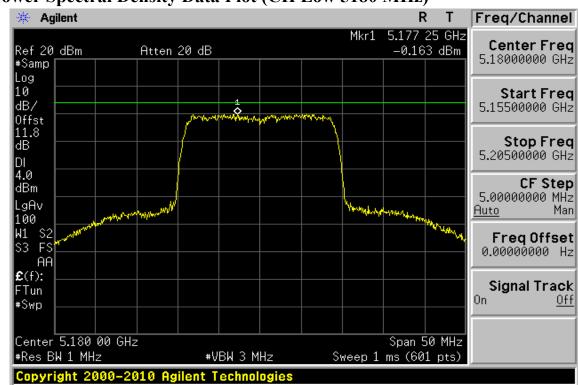
Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5510	-5.15	11.00	-16.15
5550	-5.39	11.00	-16.39
5670	-5.10	11.00	-16.10

Note: Offset 11.8dB

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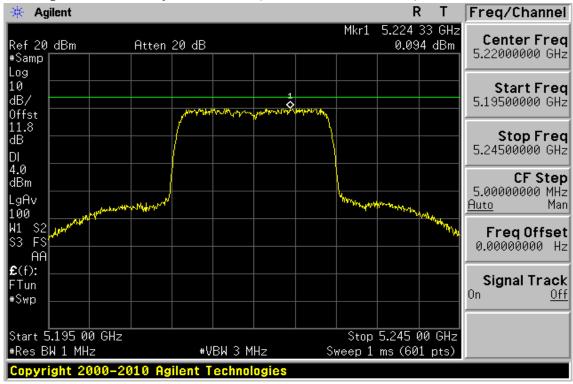
Chiefs Softerwise stated the results shown in this test report feirer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the represented document. This document a function of the company document deterstion effects the company and therein effects are accessible at the represented effect and bild effect the company. Any user there advised is a constant of the company. Any user there advised is a constant of parts and there accessible a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or ap-pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.





802.11a, 5150~5250 MHz Peak Power Spectral Density Data Plot (CH Low 5180 MHz)

Peak Power Spectral Density Data Plot (CH Mid 5220 MHz)

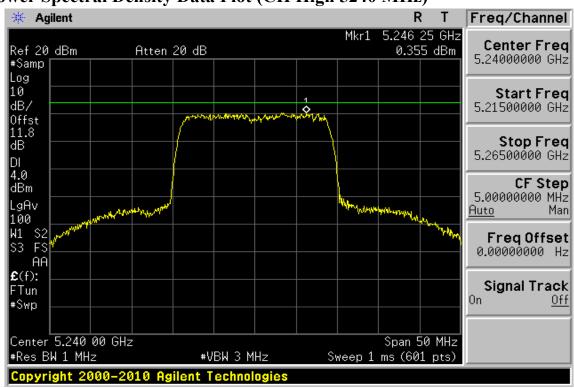


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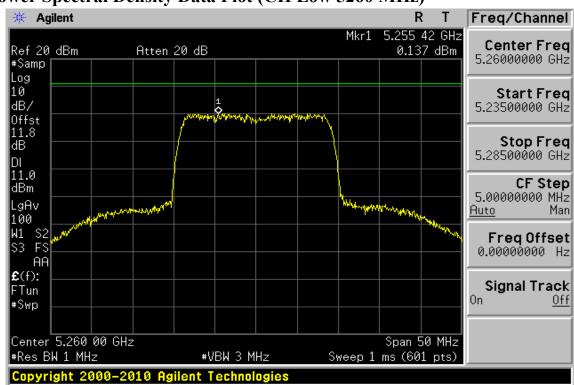
Peak Power Spectral Density Data Plot (CH High 5240 MHz)

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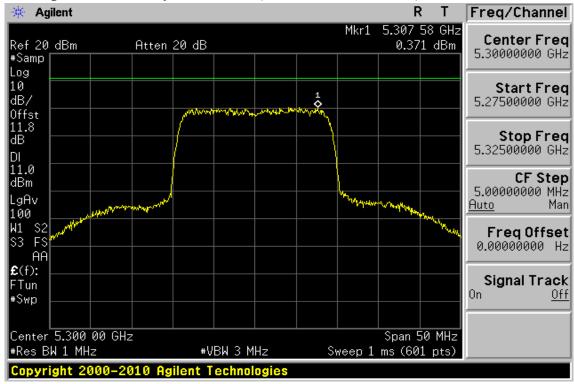
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802.11a, 5250~5350 MHz Peak Power Spectral Density Data Plot (CH Low 5260 MHz)

Peak Power Spectral Density Data Plot (CH Mid 5300 MHz)

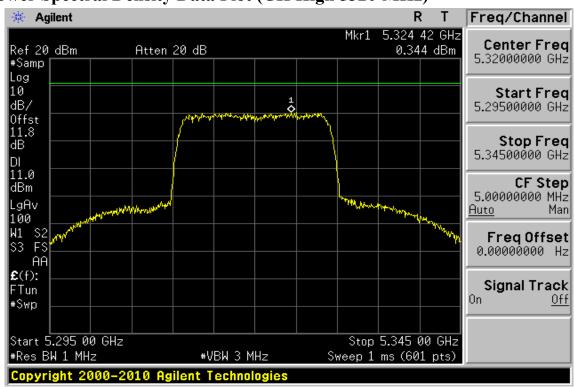


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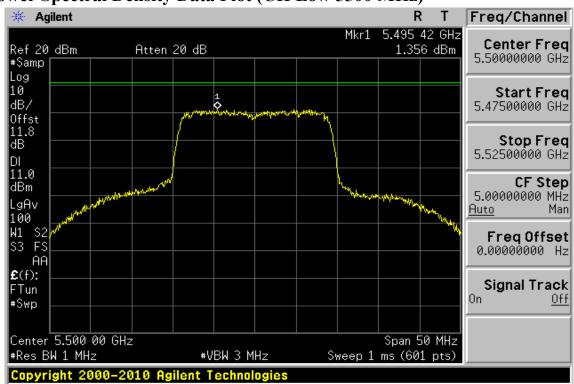


Peak Power Spectral Density Data Plot (CH High 5320 MHz)

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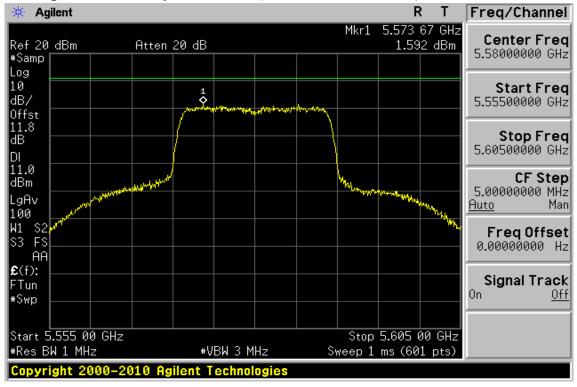
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802.11a, 5470~5725 MHz Peak Power Spectral Density Data Plot (CH Low 5500 MHz)

Peak Power Spectral Density Data Plot (CH Mid 5580 MHz)

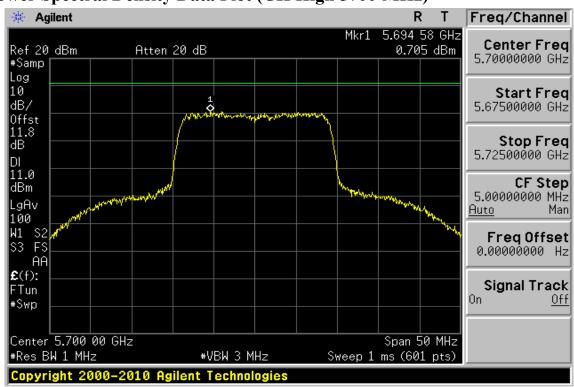


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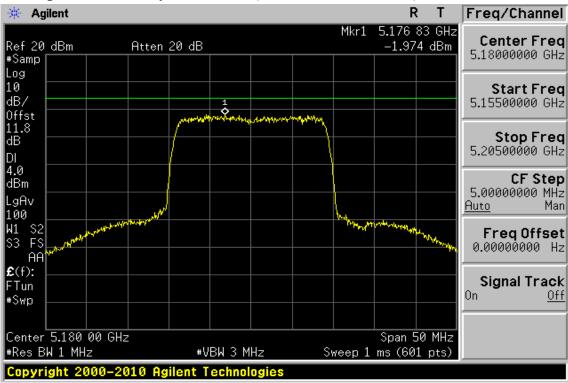
Peak Power Spectral Density Data Plot (CH High 5700 MHz)

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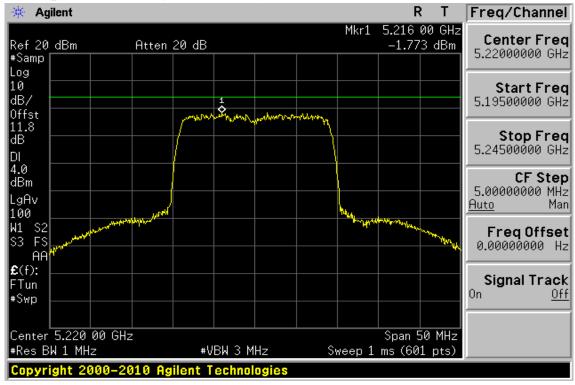
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802.11n HT20, 5150~5250 MHz Peak Power Spectral Density Data Plot (CH Low 5180 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5220 MHz)

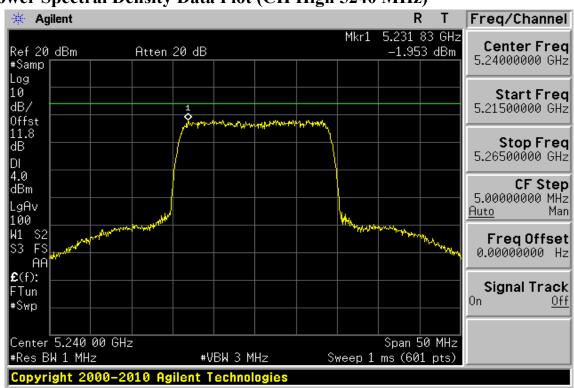


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Peak Power Spectral Density Data Plot (CH High 5240 MHz)

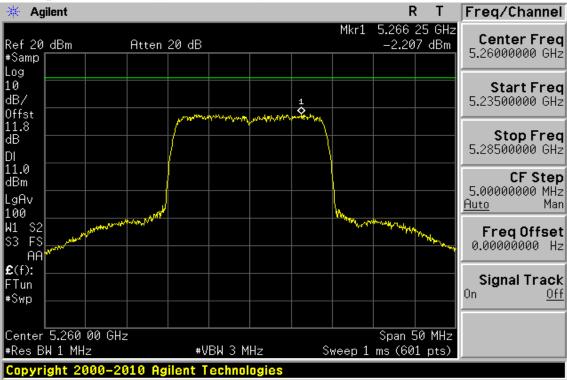
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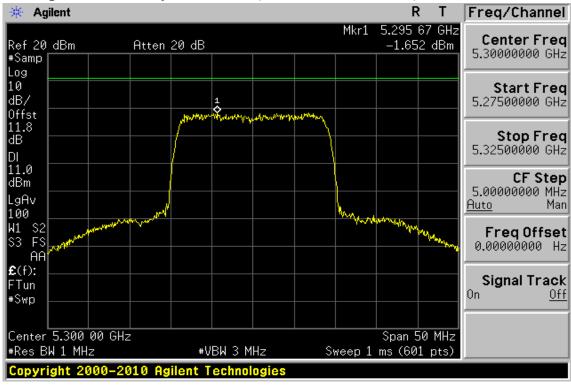
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802.11n HT20, 5250~5350 MHz Peak Power Spectral Density Data Plot (CH Low 5260MHz)



Peak Power Spectral Density Data Plot (CH Mid 5300 MHz)

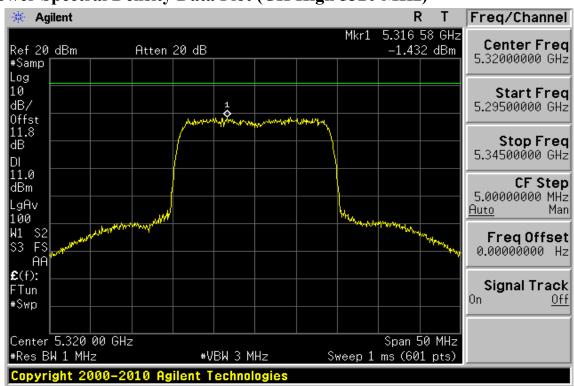


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Peak Power Spectral Density Data Plot (CH High 5320 MHz)

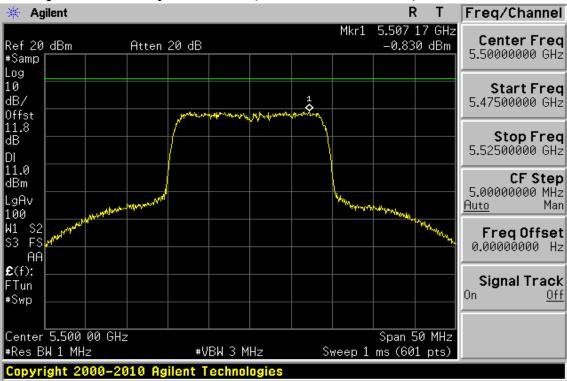
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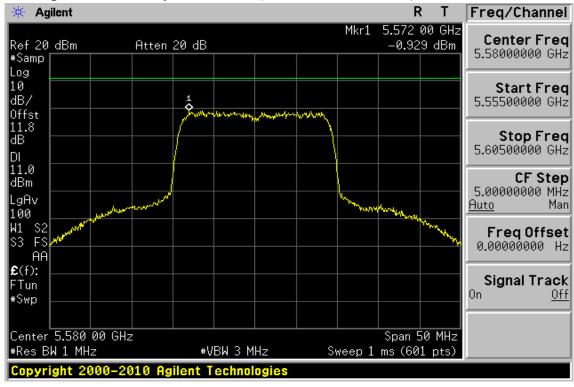
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802.11n HT20, 5470~5725 MHz Peak Power Spectral Density Data Plot (CH Low 5500 MHz)



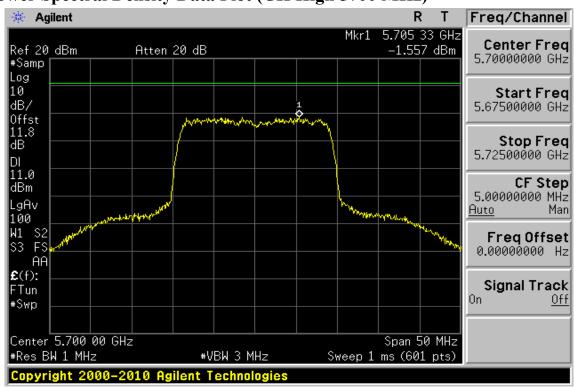
Peak Power Spectral Density Data Plot (CH Mid 5580MHz)



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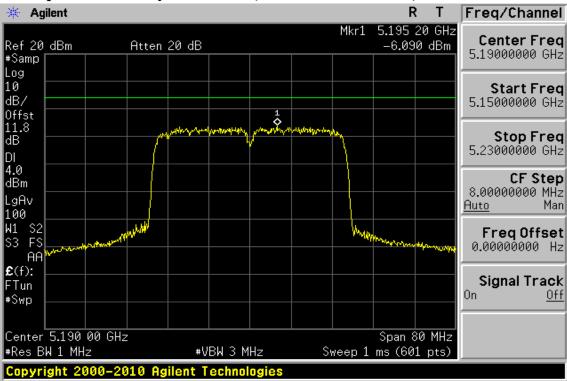
Peak Power Spectral Density Data Plot (CH High 5700 MHz)

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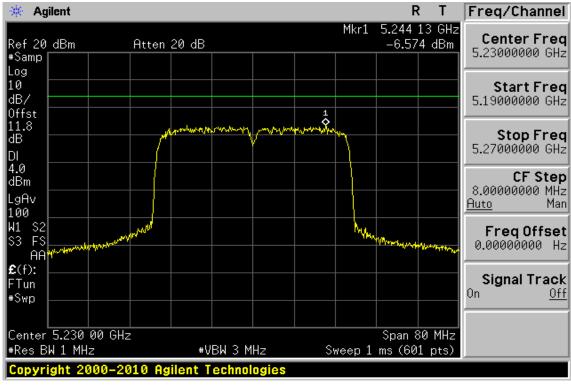
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802.11n HT40, 5150~5250 MHz Peak Power Spectral Density Data Plot (CH Low 5190 MHz)



Peak Power Spectral Density Data Plot (CH High 5230 MHz)



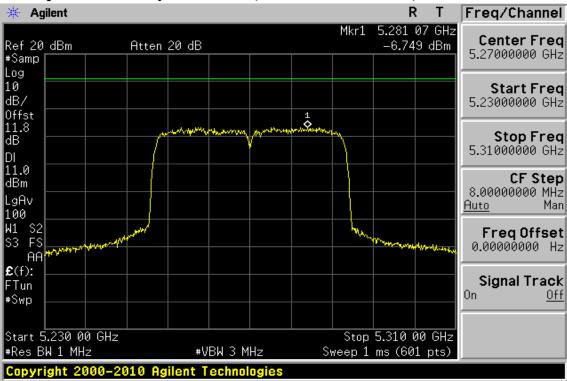
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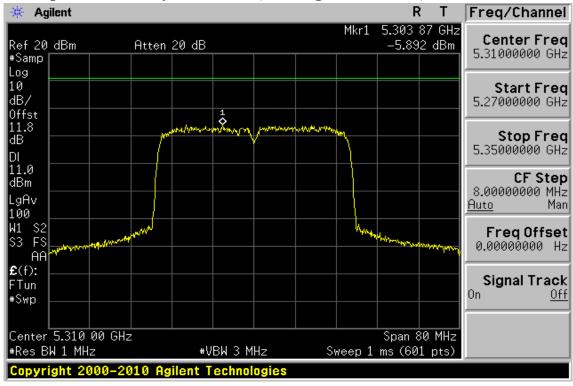
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802.11n HT40, 5250~5350 MHz Peak Power Spectral Density Data Plot (CH Low 5270 MHz)



Peak Power Spectral Density Data Plot (CH High 5310 MHz)

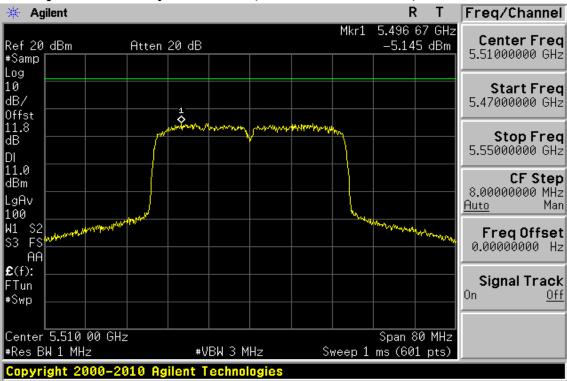


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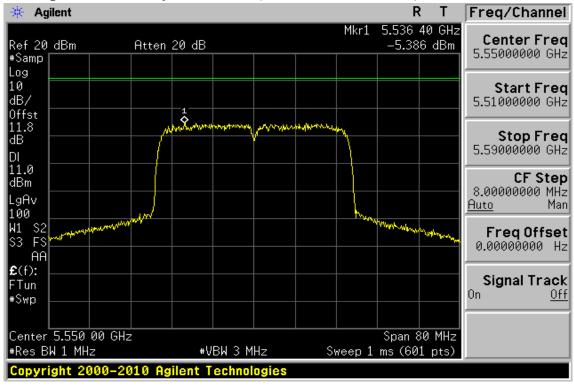
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802.11n HT40, 5470~5725 MHz Peak Power Spectral Density Data Plot (CH Low 5510 MHz)



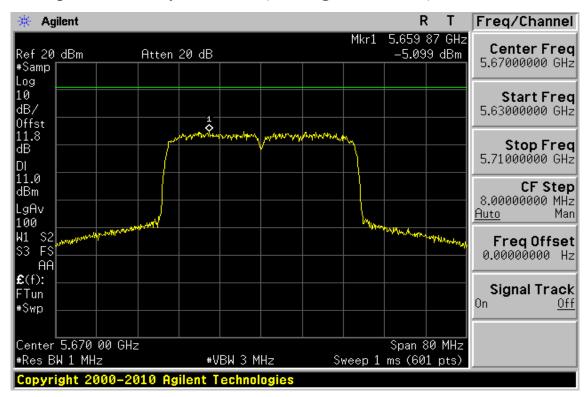
Peak Power Spectral Density Data Plot (CH Mid 5550 MHz)



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Peak Power Spectral Density Data Plot (CH High 5670 MHz)

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10. PEAK EXCURSION MEASUREMENT

10.1 Standard Applicable

15.407(a)(6) The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

10.2 Measurement Procedure (following procedure G in KDB789033)

- 1. Pre-evaluation in selection for test mode based on KDB789033
- 2. Tests mode selection is based on the variations in signal structure,
 - (i) All signal types OFDM;
 - (ii) All modulation types (BPSK, QPSK, 16-QAM, 64-QAM);
 - (iii) All bandwidth modes (20MHz, and 40MHz for 802.11n);
 - (iv) All variations in signal parameters (inapplicable);
 - (v) Error-correction coding rate (not required);
- 3. Place the EUT on the table and set it in transmitting mode.
- 4. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to spectrum.
- Set RBW=1MHz, VBW = 3MHz, span =enough to capture the signal of the interest, Max. Hold, Detector = peak
- 6. use the procedure specified in KDB 789033 F) to determine the PPSD
- 7. compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD by the subtraction
- 8. Repeat above procedures until all default test mode of default frequency band of the test is completed.

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802.11a

Modulation	Coding rate (R)	Coded bits per subcarrier (N _{BPSC})	Coded bits per OFDM symbol (N _{CBPS})	Data bits per OFDM symbol (N _{DBPS})	Data rate (Mb/s) (20 MHz channel spacing)	Data rate (Mb/s) (10 MHz channel spacing)	Data rate (Mb/s) (5 MHz channel spacing)
BPSK	1/2	1	48	24	б	3	1.5
BPSK	3/4	1	48	36	9	4.5	2.25
QPSK	1/2	2	96	48	12	6	3
QPSK	3/4	2	96	72	18	9	4.5
16-QAM	1/2	4	192	96	24	12	б
16-QAM	3/4	4	192	144	36	18	9
64-QAM	2/3	6	288	192	48	24	12
64-QAM	3/4	6	288	216	54	27	13.5

Table 18-4—Modulation-dependent parameters

802.11n 20

Table 20-30-MCS parameters for mandatory 20 MHz, N_{SS} = 1, N_{ES} = 1

100								Data ra	nte (Mb/s)
MCS Index	Modulation	R	N _{BPSCS} (i _{SS})	N _{SD}	N _{SP}	N _{CBPS}	N _{DBPS}	800 ns GI	400 ns GI (see NOTE)
0	BPSK	1/2	1	52	4	52	26	6.5	7.2
1	QPSK	1/2	2	52	4	104	52	13.0	14.4
2	QPSK	3/4	2	52	4	104	78	19.5	21.7
3	16-QAM	1/2	4	52	4	208	104	26.0	28.9
4	16-QAM	3/4	4	52	4	208	156	39.0	43.3
5	64-QAM	2/3	6	52	4	312	208	52.0	57.8
6	64-QAM	3/4	6	52	4	312	234	58.5	65.0
7	64-QAM	5/6	6	52	4	312	260	65.0	72.2
NOTE-S	upport of 400 ns O	GI is op	tional on transm	it and re	eceive.				

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802.11n 40

MCS			N (L)	N	N	N	N	Data rat	e (Mb/s)
Index	Modulation	R	N _{BPSCS} (i _{SS})	N _{SD}	N _{SP}	N _{CBPS}	N _{DBPS}	800 ns GI	400 ns GI
0	BPSK	1/2	1	108	б	108	54	13.5	15.0
1	QPSK	1/2	2	108	6	216	108	27.0	30.0
2	QPSK	3/4	2	108	6	216	162	40.5	45.0
3	16-QAM	1/2	4	108	6	432	216	54.0	60.0
4	16-QAM	3/4	4	108	6	432	324	81.0	90.0
5	64-QAM	2/3	б	108	6	648	432	108.0	120.0
6	64-QAM	3/4	б	108	6	648	486	121.5	135.0
7	64-QAM	5/6	6	108	6	648	540	135.0	150.0

Table 20-34—MCS parameters for optional 40 MHz, N_{SS} = 1, N_{ES} = 1

Note: The test mode to be performed is circle in red as presents above

10.3 **Measurement Equipment Used:**

Refer to section 7.3 for details.

10.4 Test Set-up:

Refer to section 7.4 for details.

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10.5 Test Results:

Modulation Type: BPSK

Coding Rate: 1/2

802.11a, 5150~5250 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5220	10.31	0.09	10.22	13.00

802.11a, 5250~5350 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5300	9.59	0.37	9.22	13.00

802.11a, 5470~5725 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5580	10.65	1.59	9.06	13.00

802.11n HT20, 5150~5250 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5220	8.12	-1.77	9.89	13.00

802.11n HT20, 5250~5350 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5300	7.79	-1.65	9.44	13.00

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802.11n HT20, 5470~5725 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5580	8.26	-0.93	9.19	13.00

802.11n HT40, 5150~5250 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Low	5190	4.15	-6.09	10.24	13.00

802.11n HT40, 5250~5350 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Low	5270	3.37	-6.75	10.12	13.00

802.11n HT40, 5470~5725 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Low	5510	4.25	-5.15	9.40	13.00

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Modulation Type: QPSK

Coding Rate: 1/2

802.11a, 5150~5250 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5220	10.07	-0.02	10.09	13.00

802.11a, 5250~5350 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5300	10.13	0.52	9.61	13.00

802.11a, 5470~5725 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5580	10.11	1.21	8.90	13.00

802.11n HT20, 5150~5250 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5220	8.72	-1.85	10.57	13.00

802.11n HT20, 5250~5350 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5300	8.21	-1.42	9.63	13.00

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802.11n HT20, 5470~5725 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5580	8.23	-1.06	9.29	13.00

802.11n HT40, 5150~5250 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Low	5190	4.30	-6.45	10.75	13.00

802.11n HT40, 5250~5350 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Low	5270	4.78	-6.41	11.19	13.00

802.11n HT40, 5470~5725 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Low	5510	5.45	-5.03	10.48	13.00

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Modulation Type: 16-QAM

Coding Rate: 1/2

802.11a, 5150~5250 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5220	10.21	0.01	10.20	13.00

802.11a, 5250~5350 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5300	10.87	0.27	10.60	13.00

802.11a, 5470~5725 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5580	10.79	1.38	9.41	13.00

802.11n HT20, 5150~5250 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5220	8.58	-1.50	10.08	13.00

802.11n HT20, 5250~5350 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5300	8.66	-2.12	10.78	13.00

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802.11n HT20, 5470~5725 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5580	9.72	-0.77	10.49	13.00

802.11n HT40, 5150~5250 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Low	5190	4.51	-6.72	11.23	13.00

802.11n HT40, 5250~5350 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Low	5270	4.84	-6.82	11.66	13.00

802.11n HT40, 5470~5725 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Low	5510	5.34	-5.33	10.67	13.00

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Modulation Type: 64-QAM

Coding Rate: 2/3

802.11a, 5150~5250 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5220	10.73	-0.09	10.82	13.00

802.11a, 5250~5350 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5300	10.69	0.06	10.63	13.00

802.11a, 5470~5725 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5580	11.37	1.55	9.82	13.00

802.11n HT20, 5150~5250 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5220	8.84	-1.68	10.52	13.00

802.11n HT20, 5250~5350 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Mid	5300	9.02	-1.89	10.91	13.00

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802.11n HT20, 5470~5725 MHz

Cł	hannel	Frequency (MHz)	Peak Value(dBm)	PPSD (dBm)	Peak Excursion (dB)	Limit (dB)
	Mid	5580	9.61	-1.08	10.69	13.00

802.11n HT40, 5150~5250 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Low	5190	5.14	-6.97	12.11	13.00

802.11n HT40, 5250~5350 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Low	5270	3.91	-6.71	10.62	13.00

802.11n HT40, 5470~5725 MHz

Channel	Frequency	Peak	PPSD	Peak Excursion	Limit
	(MHz)	Value(dBm)	(dBm)	(dB)	(dB)
Low	5510	4.56	-5.56	10.12	13.00

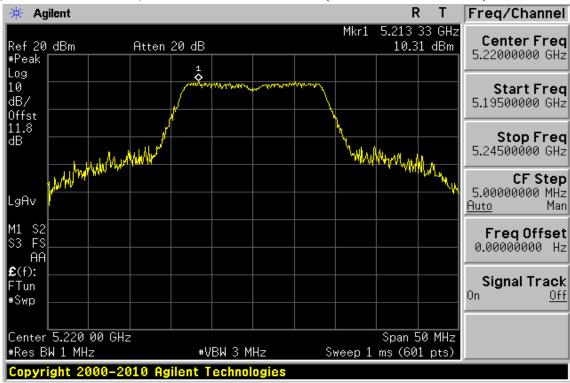
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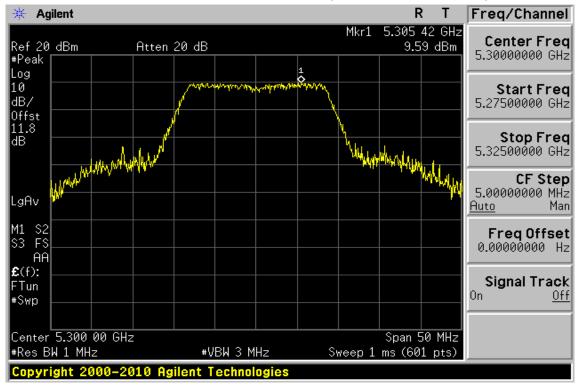
SGS Taiwan Ltd.	No.134,WuKungRoad,NewTaipe	eiIndustrialPark,WukuDistrict,NewTaipeiCit	y,Taiwan24803/新北市五股區新步	比產業園區五工路	134 號				
台灣檢驗科技股份有限公司	t (886-2) 2299-3279	f (886-2) 2298-0488	www.tw.sgs.com						



Modulation Type: BPSK, Coding Rate: 1/2 802.11a, 5150~5250 MHz, Peak Value Data Plot (CH Mid 5220 MHz)



802.11a, 5250~5350 MHz, Peak Value Data Plot (CH Mid 5300 MHz)



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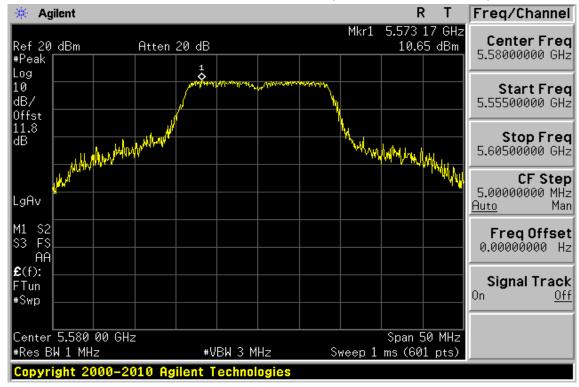
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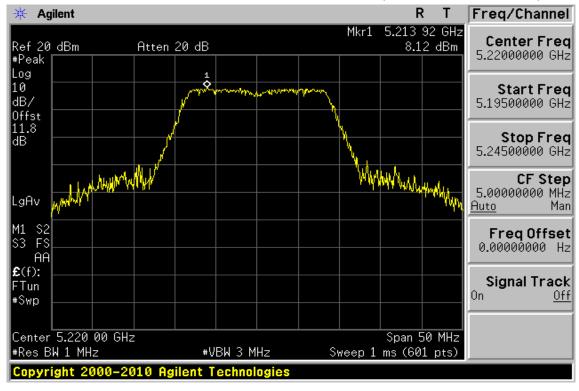
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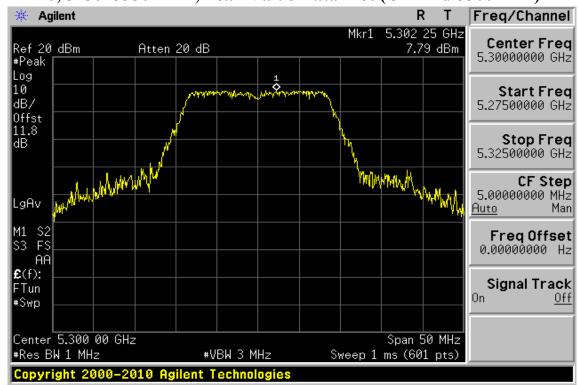
802.11n HT20, 5150~5250 MHz, Peak Value Data Plot (CH Mid 5220 MHz)



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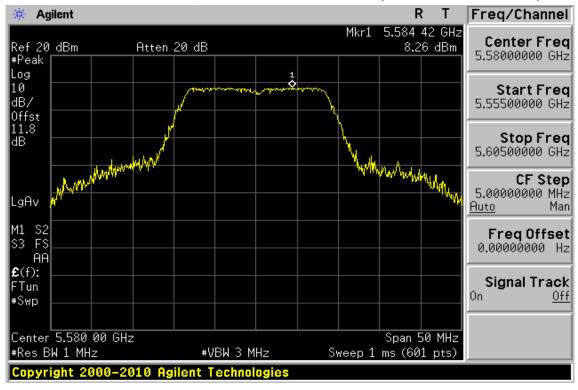
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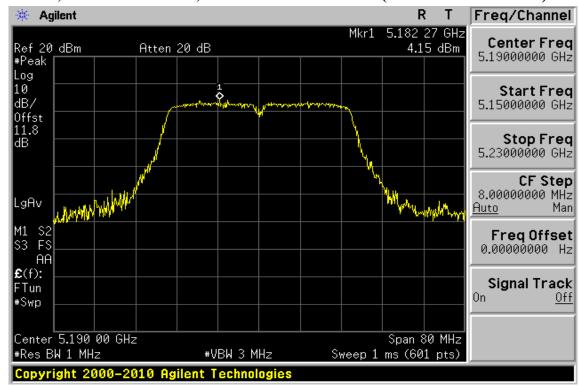
802.11n HT20, 5250~5350 MHz, Peak Value Data Plot (CH Mid 5300MHz)

802.11n HT20, 5470~5725 MHz, Peak Value Data Plot (CH Mid 5580 MHz)



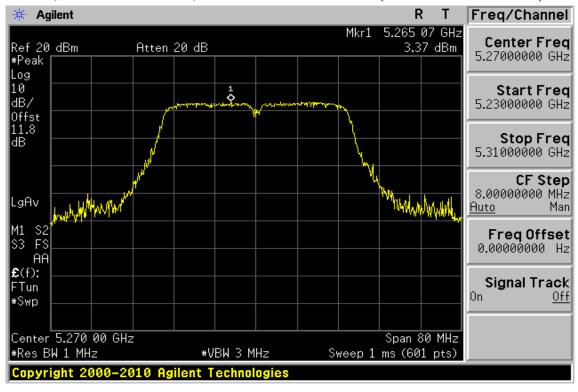
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802.11n HT40, 5150~5250 MHz, Peak Value Data Plot (CH Low 5190 MHz)

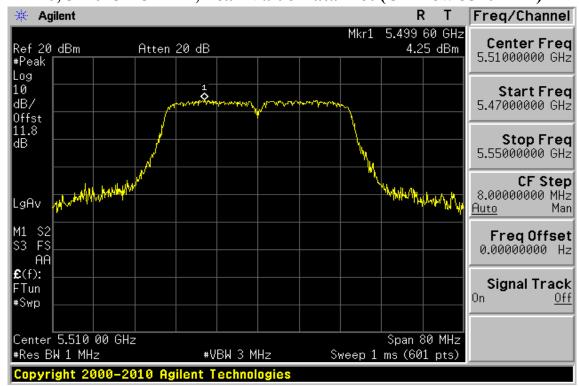
802.11n HT40, 5250~5350 MHz, Peak Value Data Plot (CH Low 5270 MHz)



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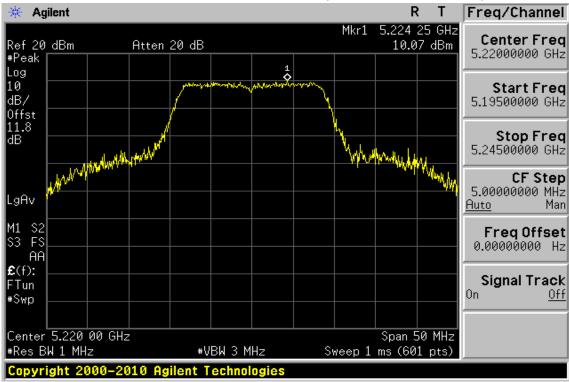
802.11n HT40, 5470~5725 MHz, Peak Value Data Plot (CH Low 5510MHz)

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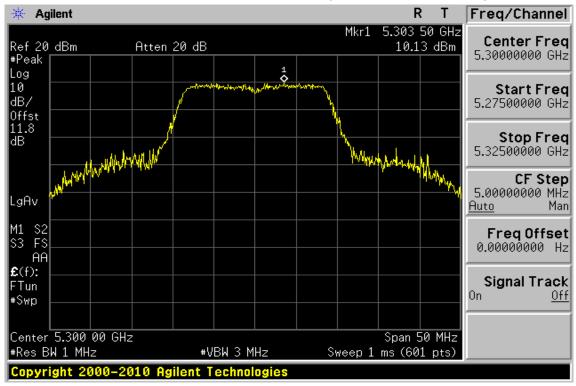
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Modulation Type: QPSK, Coding Rate: 1/2 802.11a, 5150~5250 MHz, Peak Value Data Plot (CH Mid 5220 MHz)



802.11a, 5250~5350 MHz, Peak Value Data Plot (CH Mid 5300 MHz)



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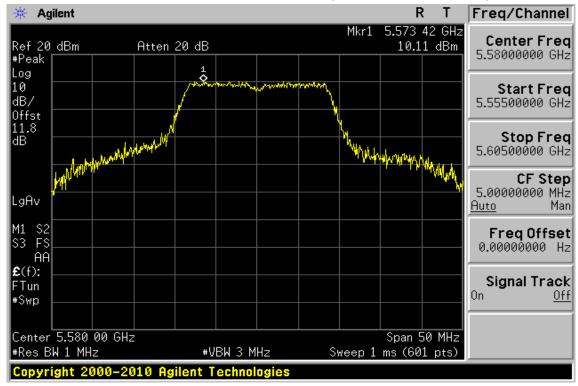
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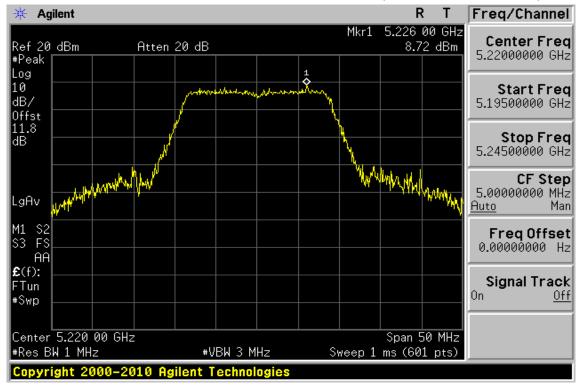
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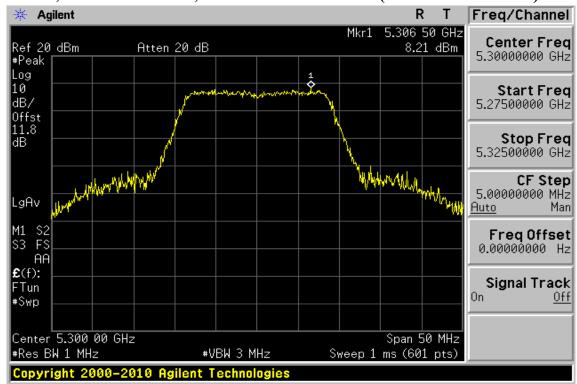


802.11n HT20, 5150~5250 MHz, Peak Value Data Plot (CH Mid 5220 MHz)



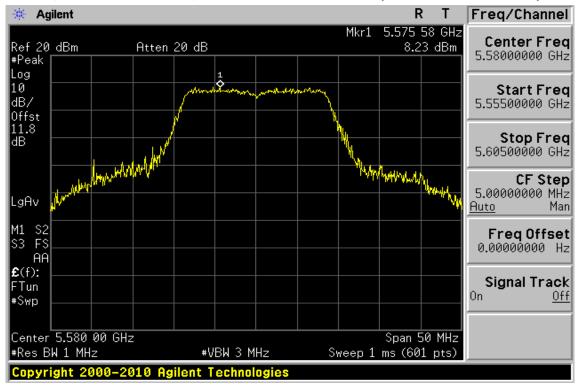
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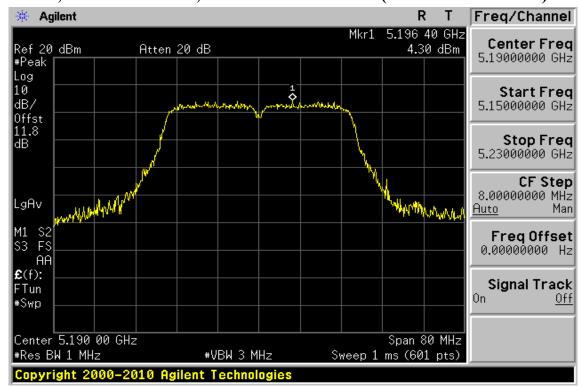
802.11n HT20, 5250~5350 MHz, Peak Value Data Plot (CH Mid 5300MHz)

802.11n HT20, 5470~5725 MHz, Peak Value Data Plot (CH Mid 5580 MHz)



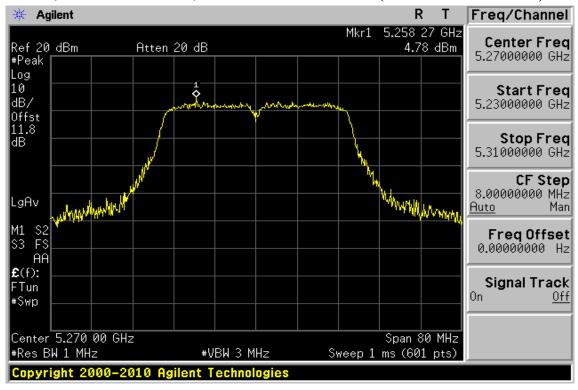
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802.11n HT40, 5150~5250 MHz, Peak Value Data Plot (CH Low 5190 MHz)

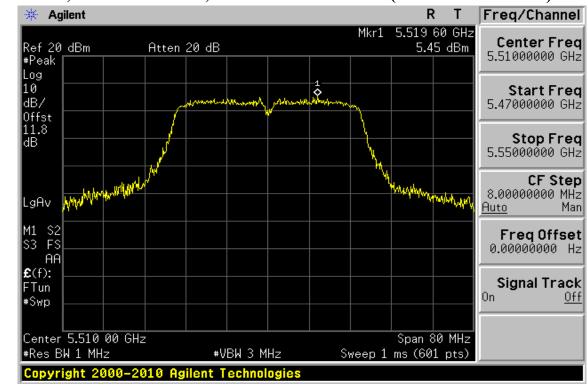
802.11n HT40, 5250~5350 MHz, Peak Value Data Plot (CH Low 5270 MHz)



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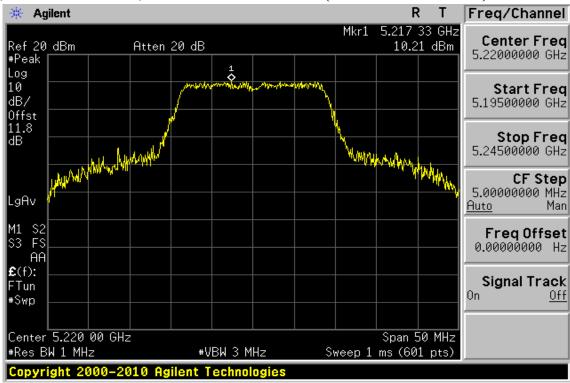
802.11n HT40, 5470~5725 MHz, Peak Value Data Plot (CH Low 5510MHz)

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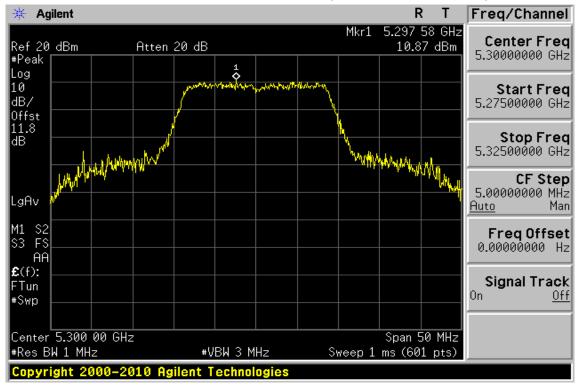
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Modulation Type: 16-QAM, Coding Rate: 1/2 802.11a, 5150~5250 MHz, Peak Value Data Plot (CH Mid 5220 MHz)



802.11a, 5250~5350 MHz, Peak Value Data Plot (CH Mid 5300 MHz)



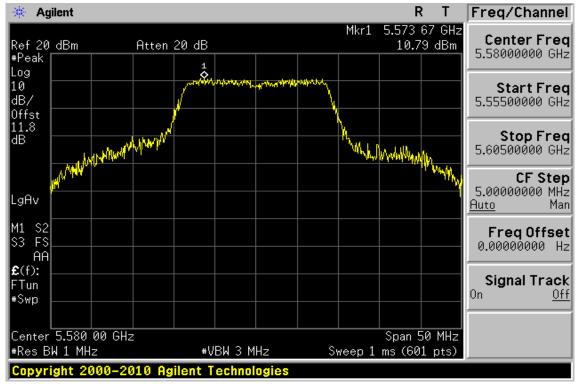
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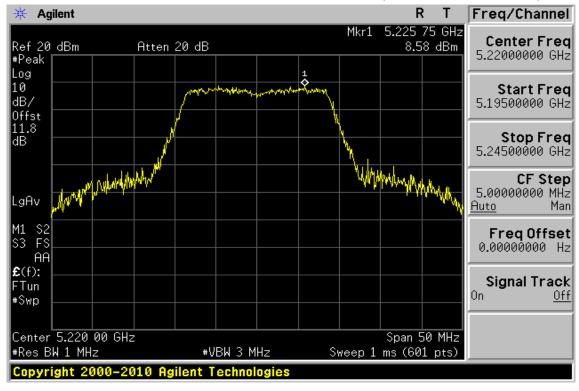
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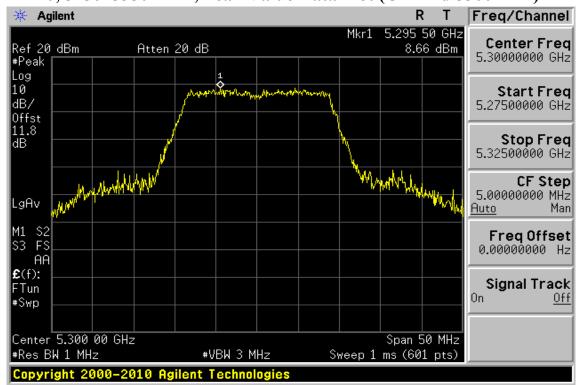
802.11n HT20, 5150~5250 MHz, Peak Value Data Plot (CH Mid 5220 MHz)



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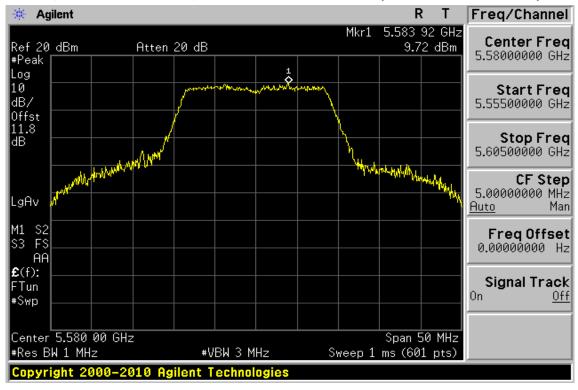
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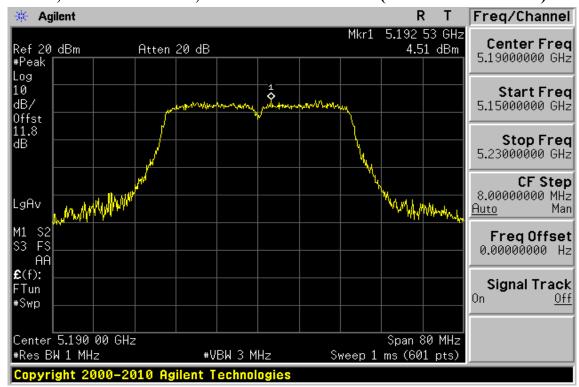
802.11n HT20, 5250~5350 MHz, Peak Value Data Plot (CH Mid 5300MHz)

802.11n HT20, 5470~5725 MHz, Peak Value Data Plot (CH Mid 5580 MHz)



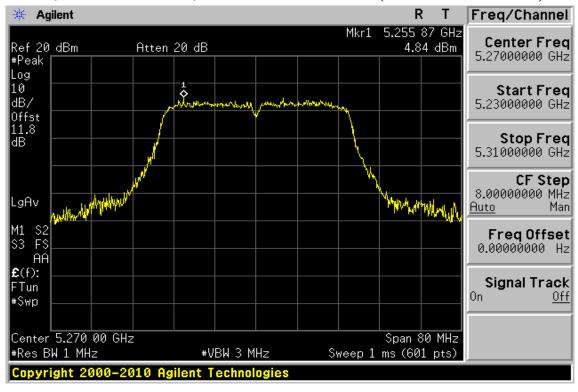
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802.11n HT40, 5150~5250 MHz, Peak Value Data Plot (CH Low 5190 MHz)

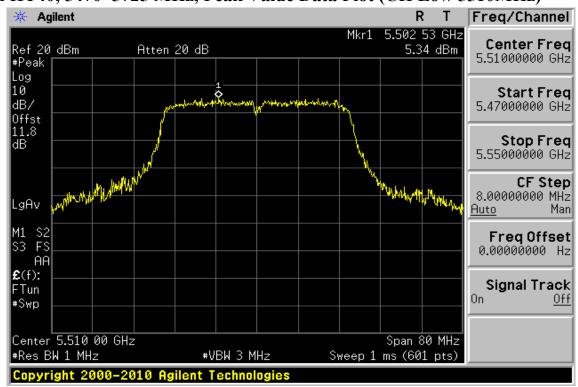
802.11n HT40, 5250~5350 MHz, Peak Value Data Plot (CH Low 5270 MHz)



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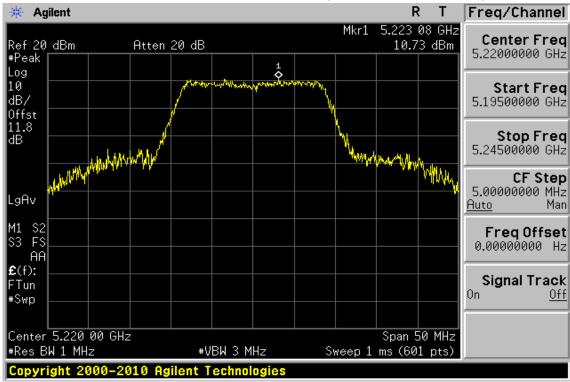
802.11n HT40, 5470~5725 MHz, Peak Value Data Plot (CH Low 5510MHz)

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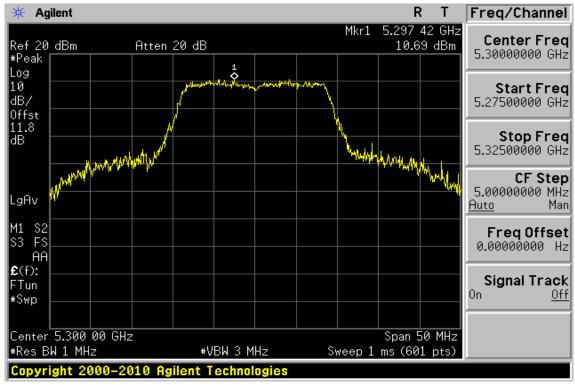
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Modulation Type: 64-QAM, Coding Rate: 2/3 802.11a, 5150~5250 MHz, Peak Value Data Plot (CH Mid 5220 MHz)



802.11a, 5250~5350 MHz, Peak Value Data Plot (CH Mid 5300 MHz)

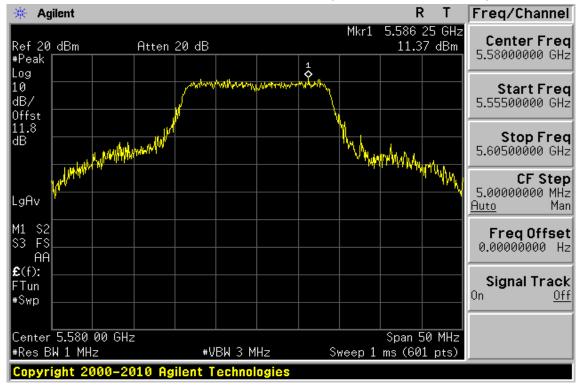


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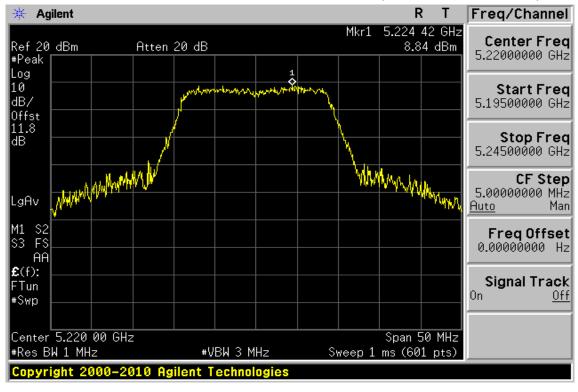
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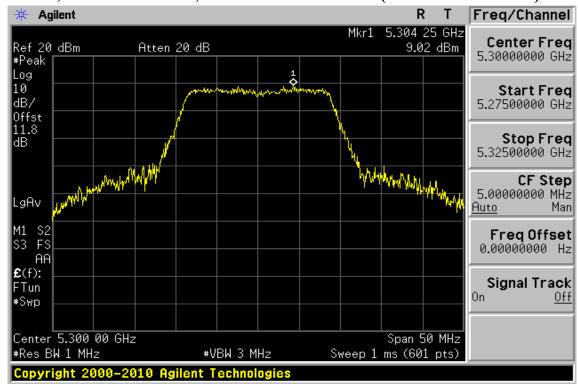


802.11n HT20, 5150~5250 MHz, Peak Value Data Plot (CH Mid 5220 MHz)



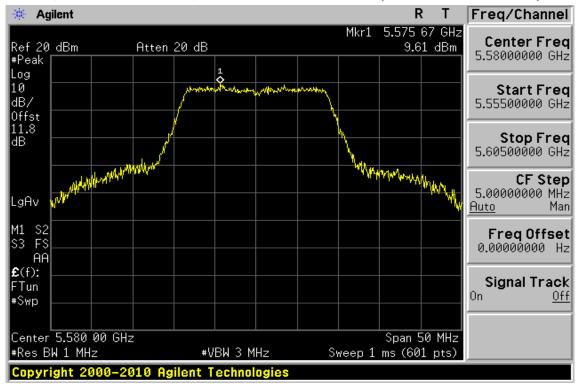
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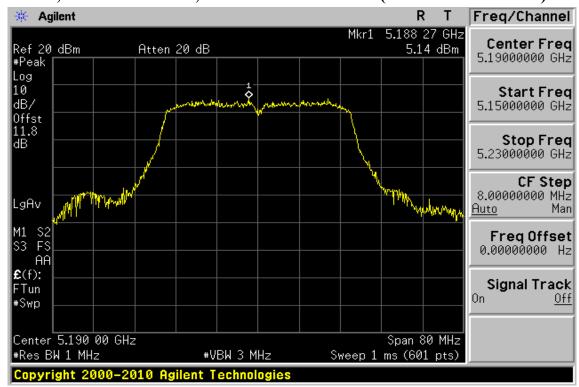
802.11n HT20, 5250~5350 MHz, Peak Value Data Plot (CH Mid 5300MHz)

802.11n HT20, 5470~5725 MHz, Peak Value Data Plot (CH Mid 5580 MHz)



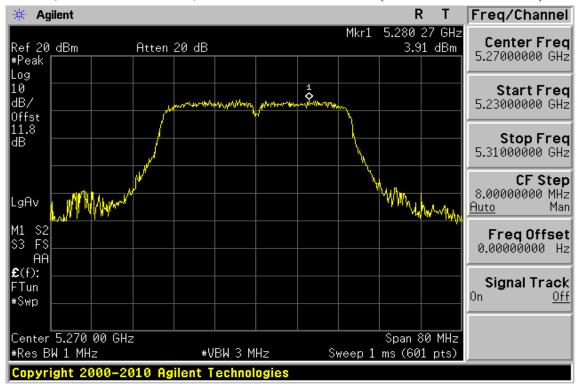
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802.11n HT40, 5150~5250 MHz, Peak Value Data Plot (CH Low 5190 MHz)

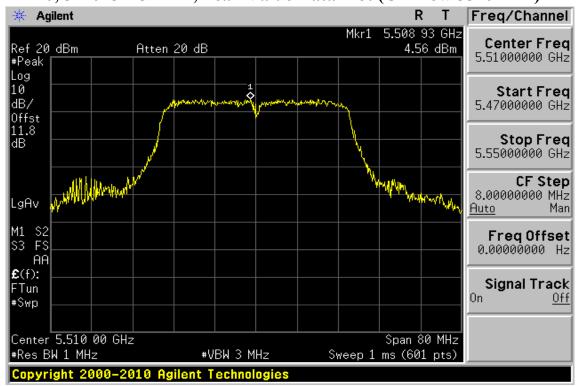
802.11n HT40, 5250~5350 MHz, Peak Value Data Plot (CH Low 5270 MHz)



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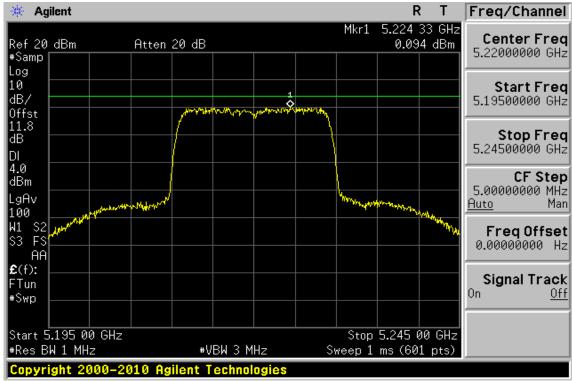
802.11n HT40, 5470~5725 MHz, Peak Value Data Plot (CH Low 5510MHz)

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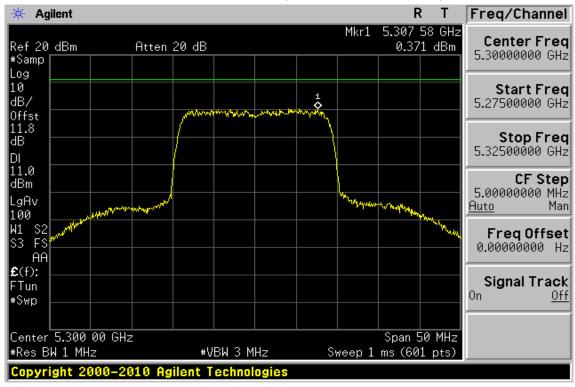
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Modulation Type: BPSK, Coding Rate: 1/2 PPSD Data Plot (CH Mid 5220 MHz)



802.11a, 5250~5350 MHz, PPSD Data Plot (CH Mid 5300 MHz)

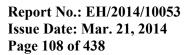


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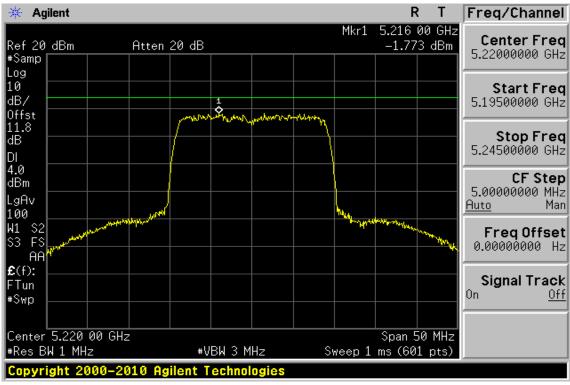
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802.11a, 5470~5725 MHz, PPSD Data Plot (CH Mid 5580 MHz) 🔆 Agilent R Freq/Channel Т Mkr1 5.573 67 GHz Center Freq Ref 20 dBm Atten 20 dB 1.592 dBm 5.58000000 GHz #Samp Log 10 Start Freq 1 dB/ 5.55500000 GHz Offst 11.8 Stop Frea dB 5.60500000 GHz DI 11.0 CF Step dBm المراس 5.00000000 MHz LgAv <u>Auto</u> man 100 W1 S2 Freq Offset \$3 FS 0.00000000 Hz AA £(f): Signal Track Tun 0n #Swp

Start 5.555 00 GHz Stop 5.605 00 GHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts) Copyright 2000-2010 Agilent Technologies

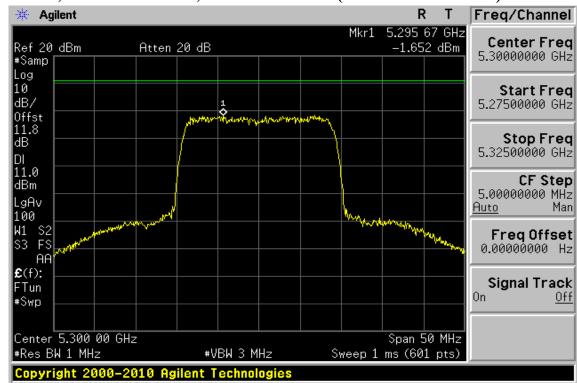
802.11n HT20, 5150~5250 MHz, PPSD Data Plot (CH Mid 5220 MHz)



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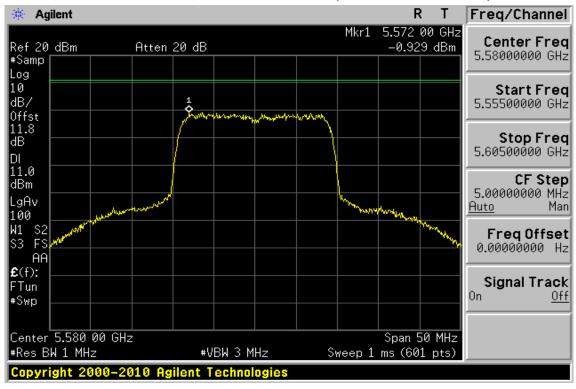
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802.11n HT20, 5250~5350 MHz, PPSD Data Plot (CH Mid 5300 MHz)

802.11n HT20, 5470~5725 MHz, PPSD Data Plot (CH Mid 5580MHz)

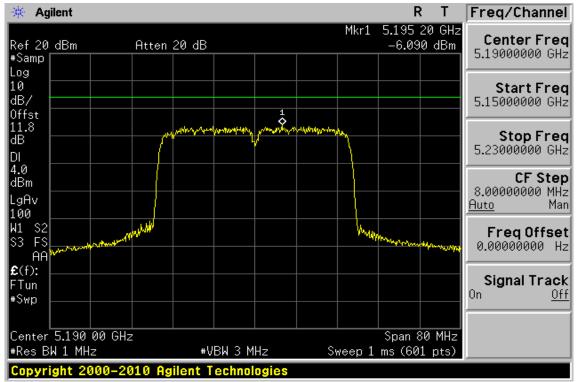


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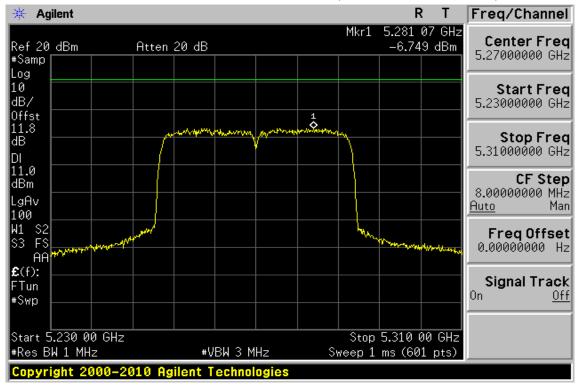
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台灣檢驗科技股份有限公司	t (886-2) 2299-3279	f (886-2) 2298-0488	www.tw.sgs.com





802.11n HT40, 5250~5350 MHz, PPSD Data Plot (CH Low 5270 MHz)

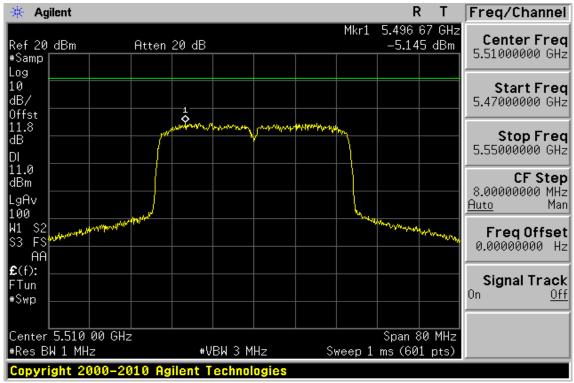


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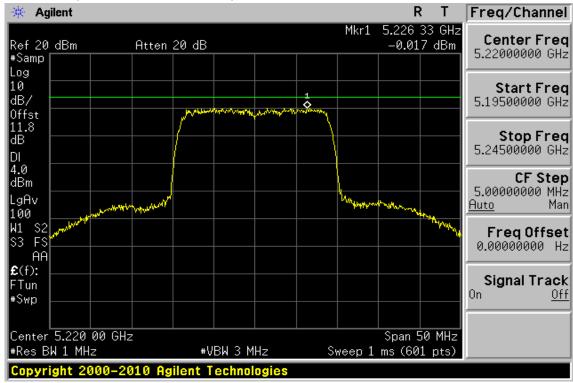


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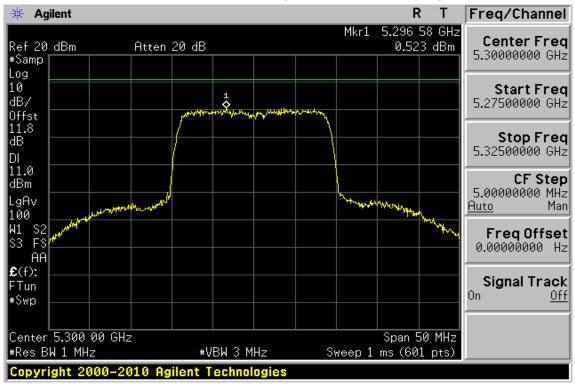
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Modulation Type: QPSK, Coding Rate: 1/2 PPSD Data Plot (CH Mid 5220 MHz)

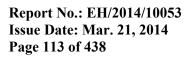


802.11a, 5250~5350 MHz, PPSD Data Plot (CH Mid 5300 MHz)

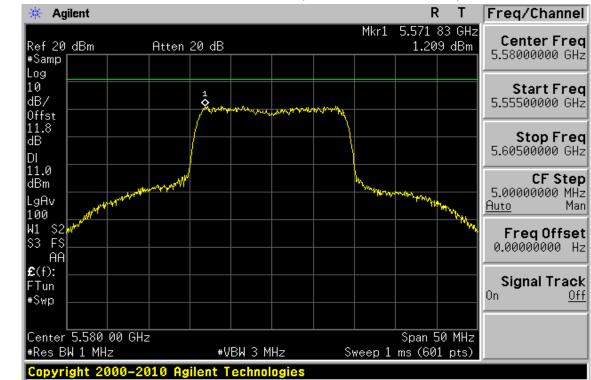


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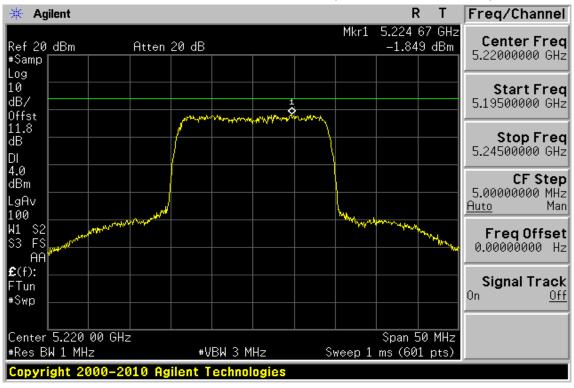






802.11a, 5470~5725 MHz, PPSD Data Plot (CH Mid 5580 MHz)

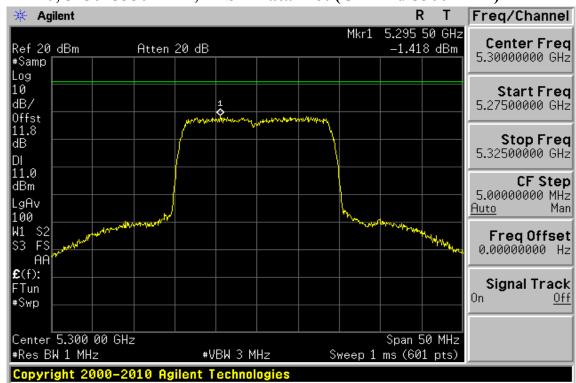
802.11n HT20, 5150~5250 MHz, PPSD Data Plot (CH Mid 5220 MHz)



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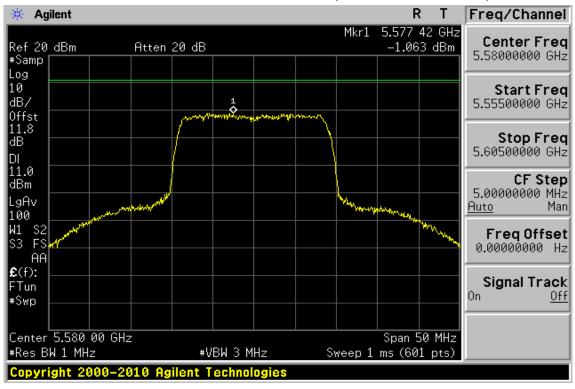
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802.11n HT20, 5250~5350 MHz, PPSD Data Plot (CH Mid 5300 MHz)

802.11n HT20, 5470~5725 MHz, PPSD Data Plot (CH Mid 5580MHz)

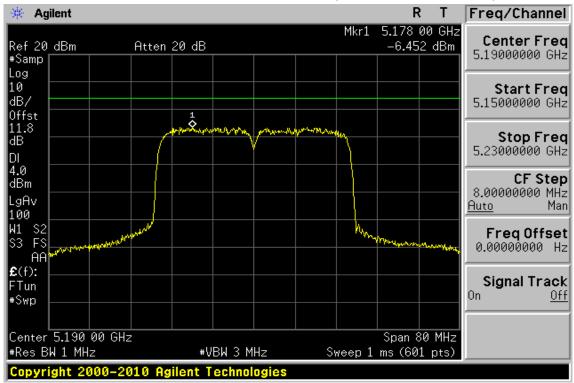


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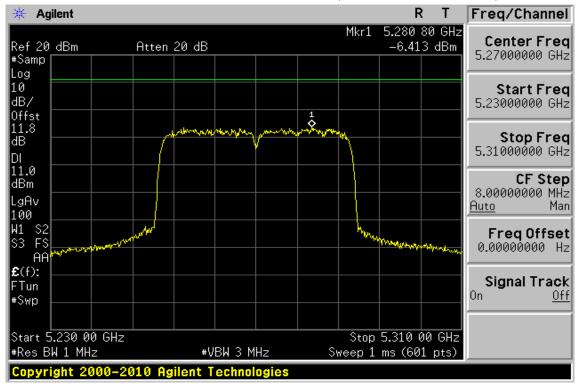
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802.11n HT40, 5150~5250 MHz, PPSD Data Plot (CH Low 5190 MHz)



802.11n HT40, 5250~5350 MHz, PPSD Data Plot (CH Low 5270 MHz)

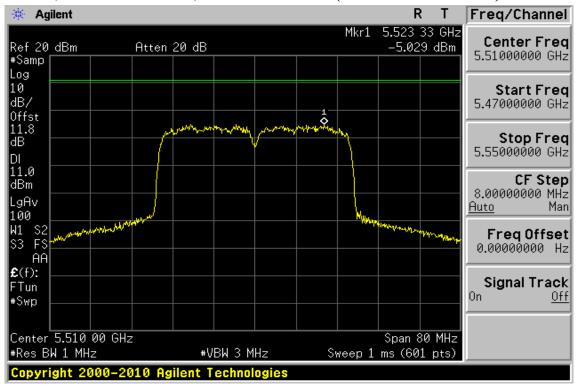


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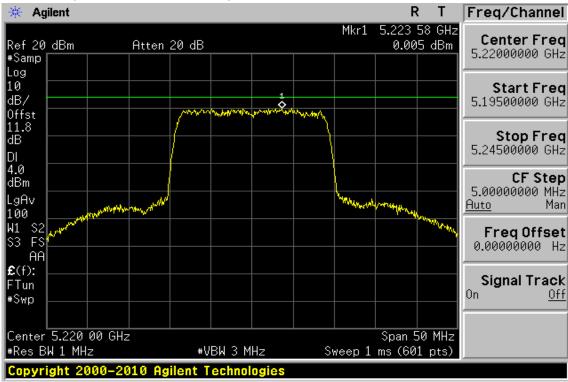
802.11n HT40, 5470~5725 MHz, PPSD Data Plot (CH Low 5510 MHz)



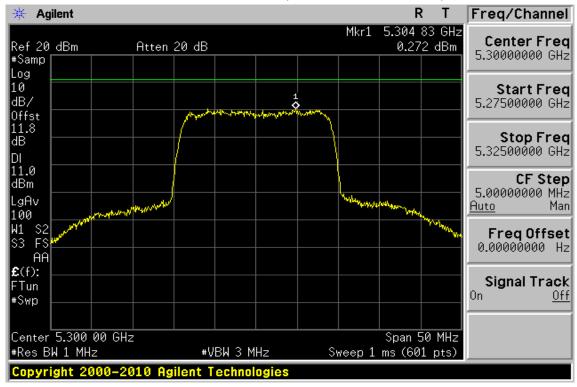
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Modulation Type: 16-QAM, Coding Rate: 1/2 **PPSD Data Plot (CH Mid 5220 MHz)**



802.11a, 5250~5350 MHz, PPSD Data Plot (CH Mid 5300 MHz)



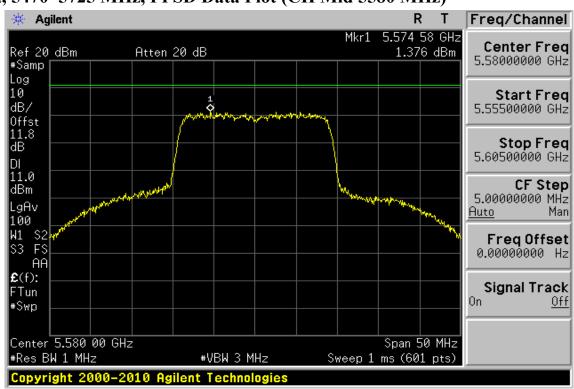
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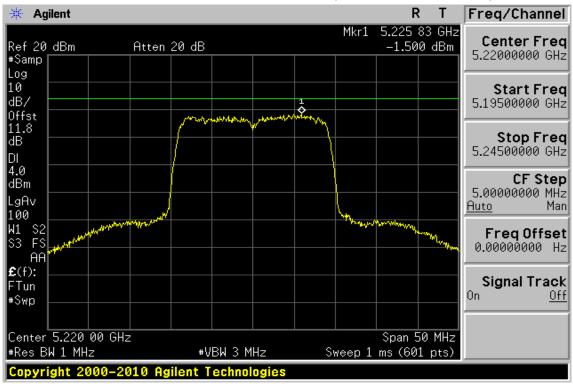
Taiwan Ltd





802.11a, 5470~5725 MHz, PPSD Data Plot (CH Mid 5580 MHz)

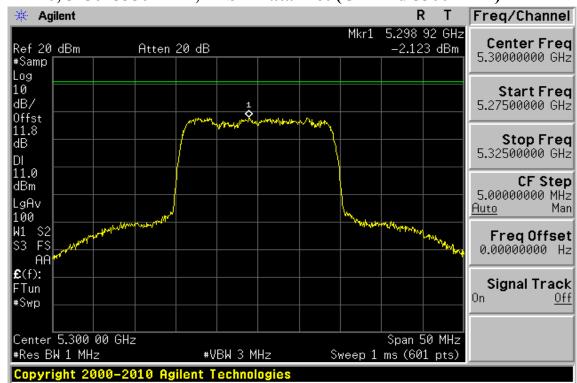
802.11n HT20, 5150~5250 MHz, PPSD Data Plot (CH Mid 5220 MHz)



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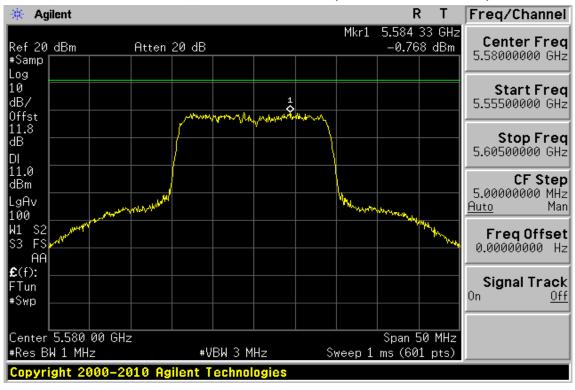
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802.11n HT20, 5250~5350 MHz, PPSD Data Plot (CH Mid 5300 MHz)

802.11n HT20, 5470~5725 MHz, PPSD Data Plot (CH Mid 5580MHz)



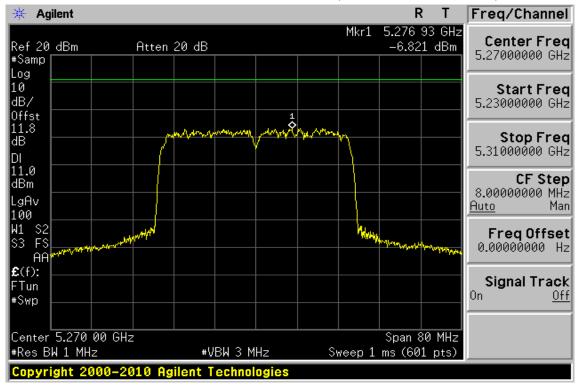
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802.11n HT40, 5250~5350 MHz, PPSD Data Plot (CH Low 5270 MHz)

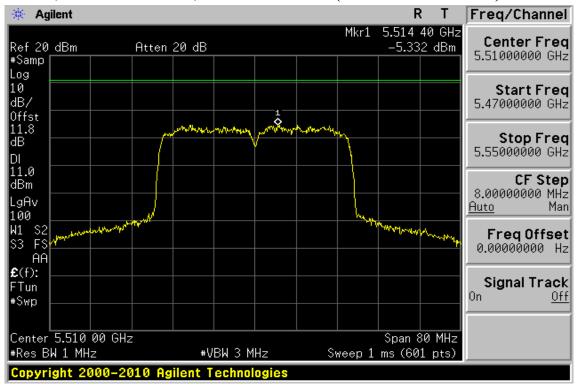


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802.11n HT40, 5470~5725 MHz, PPSD Data Plot (CH Low 5510 MHz)

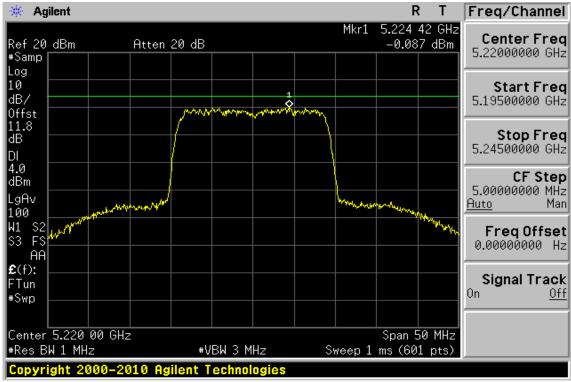


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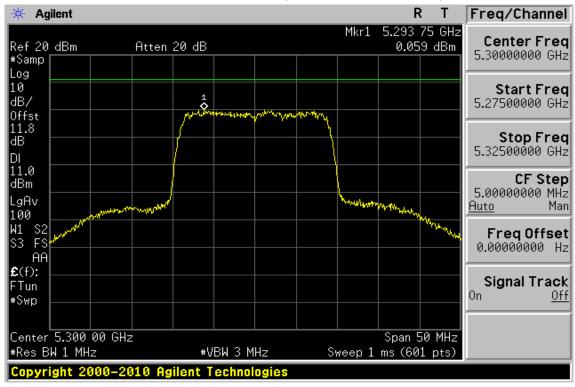
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Modulation Type: 64-QAM, Coding Rate: 2/3 PPSD Data Plot (CH Mid 5220 MHz)



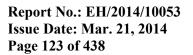
802.11a, 5250~5350 MHz, PPSD Data Plot (CH Mid 5300 MHz)



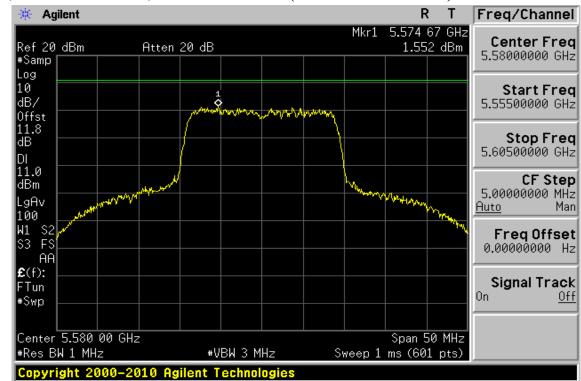
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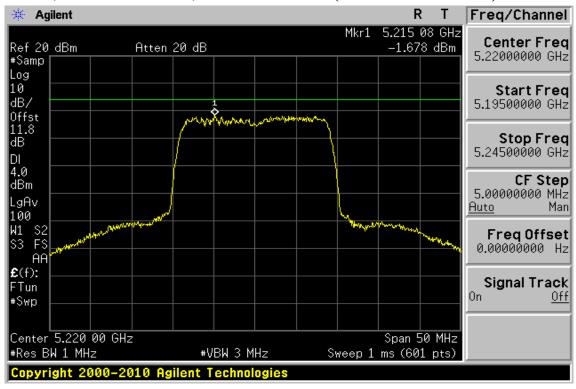






802.11a, 5470~5725 MHz, PPSD Data Plot (CH Mid 5580 MHz)

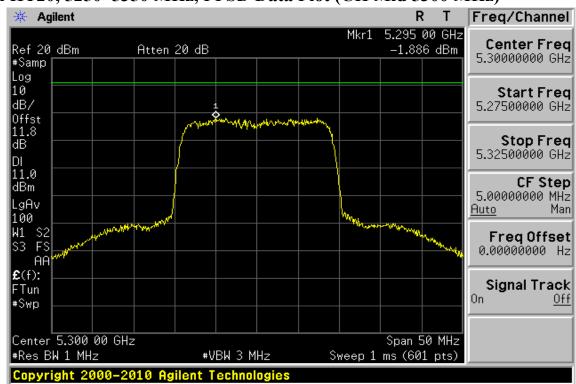
802.11n HT20, 5150~5250 MHz, PPSD Data Plot (CH Mid 5220 MHz)



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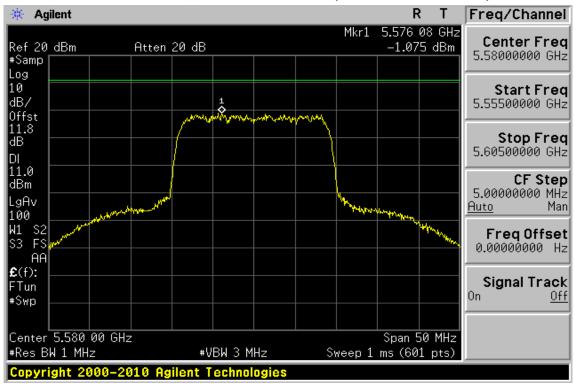
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802.11n HT20, 5250~5350 MHz, PPSD Data Plot (CH Mid 5300 MHz)

802.11n HT20, 5470~5725 MHz, PPSD Data Plot (CH Mid 5580MHz)



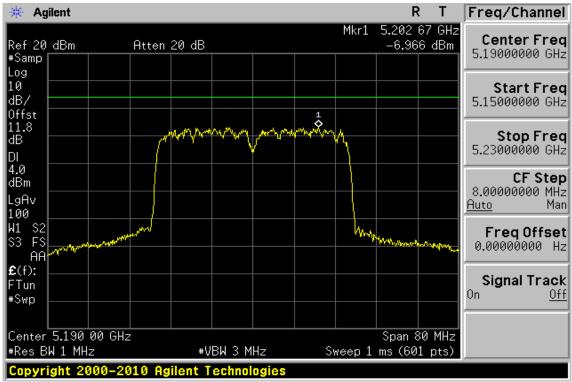
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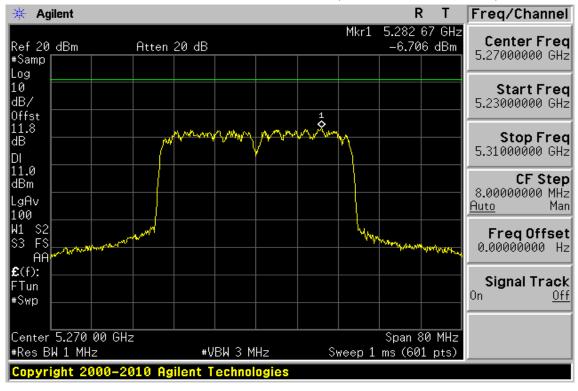
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802.11n HT40, 5250~5350 MHz, PPSD Data Plot (CH Low 5270 MHz)



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802.11n HT40, 5470~5725 MHz, PPSD Data Plot (CH Low 5510 MHz)



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11. UNDESIRABLE EMISSION - CONDUCTED MEASUREMENT11.1 Standard Applicable

According to §15.407(b),

(b) Undesirable Emission Limits: Except as shown in Paragraph (b)(6) of this section, the peak emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.
- (3) For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.
- (4) The above emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

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11.2 Measurement Procedure

Conducted Emission:

- 1. To connect Antenna Port of EUT to Spectrum.
- Set RBW = 100 kHz, VBW = 300 kHz while frequency of the measurement is swept below 1GHz, RBW = 1MHz & VBW = 3MHz while frequency of the measurement is swept above 1GHz on Spectrum. Detector = Peak, set DL as the limit line to -27dBm, add the offset = 4.7dB for frequency below 1GHz, and 2dB for frequency above 1GHz.
- 3. Sweep the frequency to determine spurious emission as seen on spectrum from span of 30 to 1G, 1G to 3G, 3G to 6G, 6G to 13G, 13G to 18G, 18G to 26.5G and 26.5G to 40GHz
- 4. Via Software, combine 6 spans of frequency range into one plot

Conducted RF measurements of the transmitter output were made at the band edges and the adjacent restricted bands.

Also, conducted RF measurements of the transmitter output over the 30 MHz to 40 GHz band were made in order to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

Note: the spike on the spectrum is the fundamental emission that does not account for the test outside the frequency band as required by associative regulatory provision.

11.3 Measurement Equipment Used:

Refer to section 7.3 for details.

11.4 Test Set-up:

Refer to section 7.4 for details.

11.5 Measurement Result:

Refer to next page for plots.

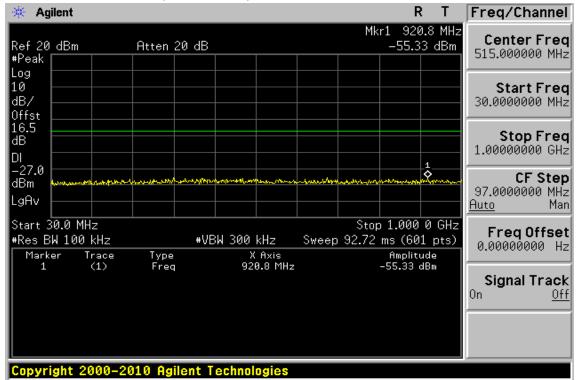
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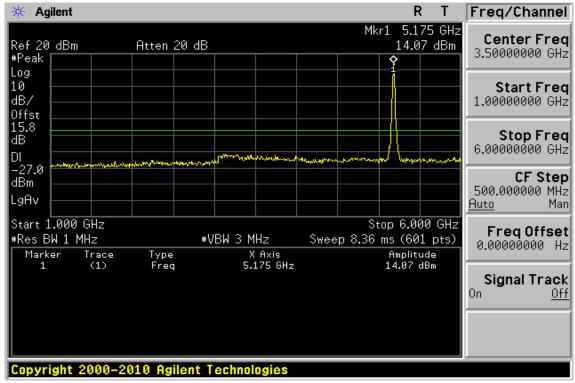
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802.11a, 5150~5250 MHz Ch Low 30MHz – 1GHz (5180 MHz)





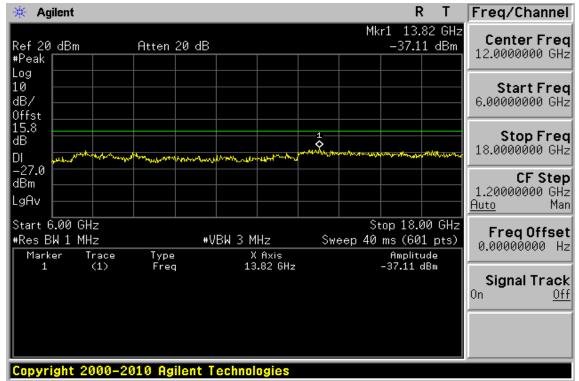


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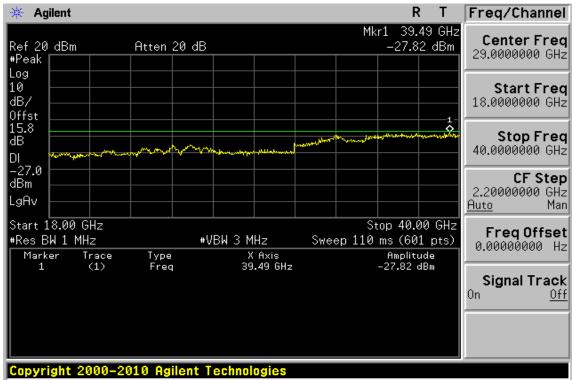
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Ch Low 6GHz – 18GHz



Ch Low 18GHz - 40GHz

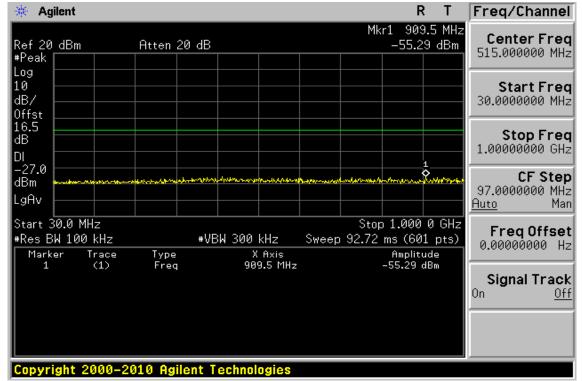


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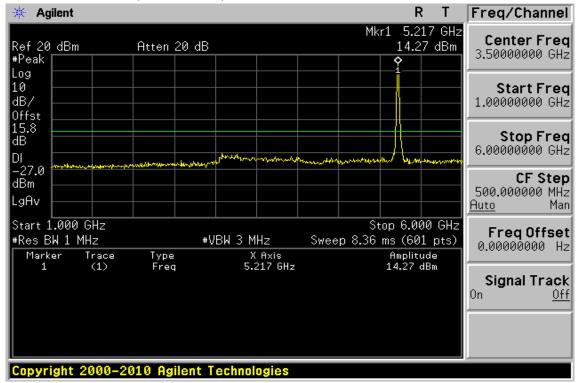
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Ch Mid 30MHz – 1GHz (5220 MHz)



Ch Mid 1GHz – 6GHz (5220 MHz)

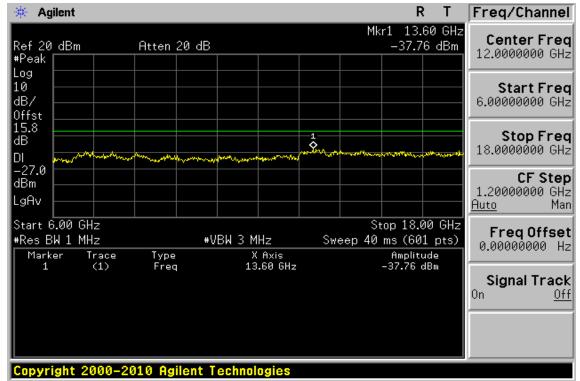


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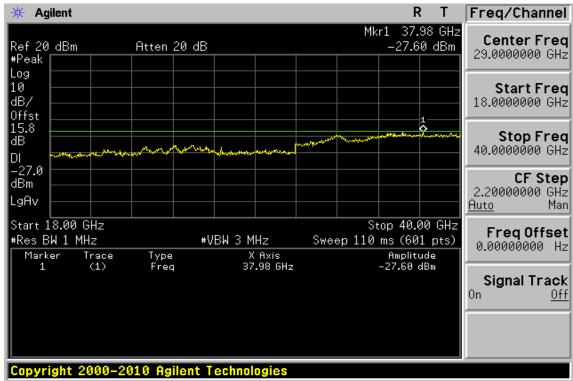
除非另有説明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。



Ch Mid 6GHz – 18GHz



Ch Mid 18GHz – 40GHz

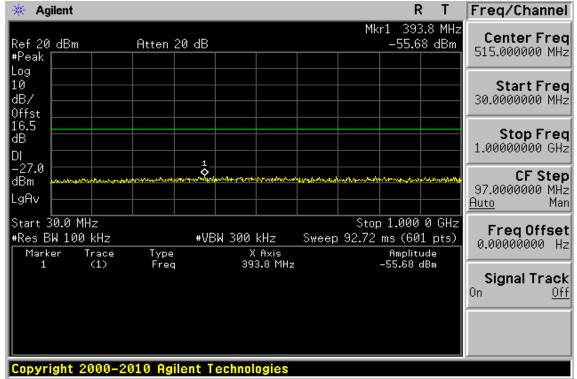


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

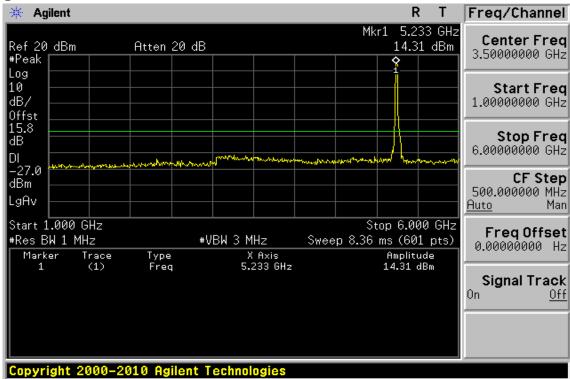
除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。



Ch High 30MHz – 1GHz (5240 MHz)



Ch High 1GHz – 6GHz

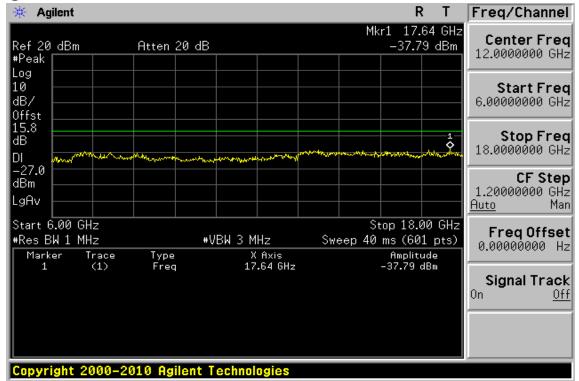


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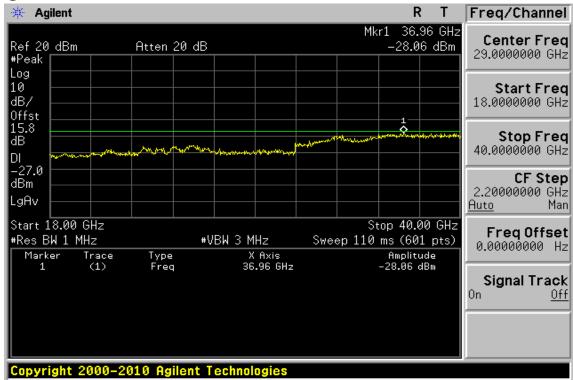
除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。



Ch High 6GHz – 18GHz



Ch High 18GHz – 40GHz



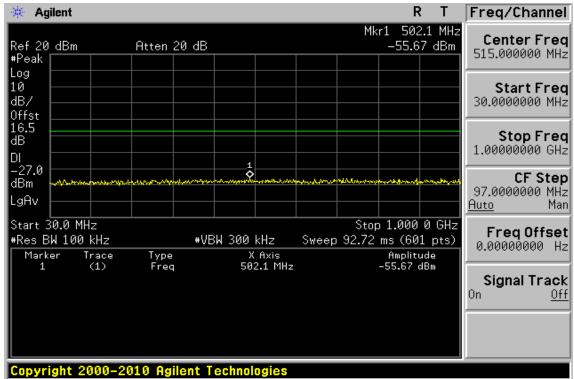
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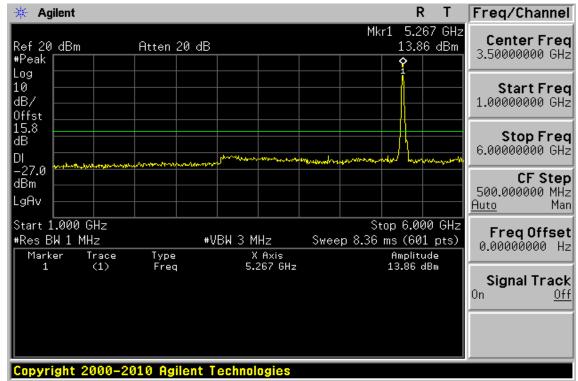




802.11a, 5250~5350 MHz Ch Low 30MHz – 1GHz (5260 MHz)



Ch Low 1GHz – 6GHz (5260 MHz)

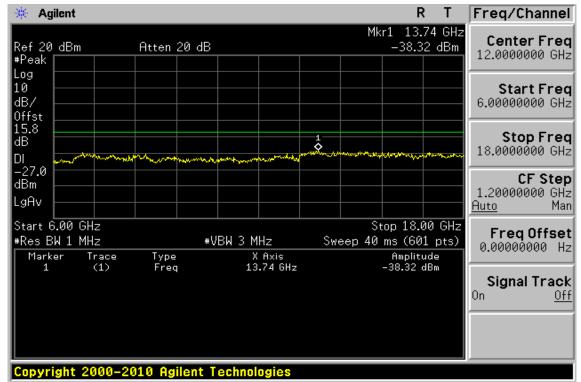


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

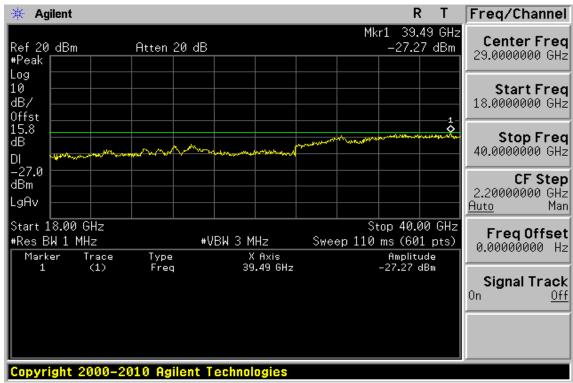
除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。



Ch Low 6GHz - 18GHz



Ch Low 18GHz - 40GHz

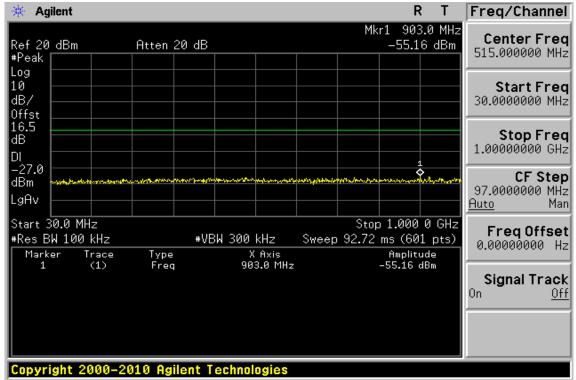


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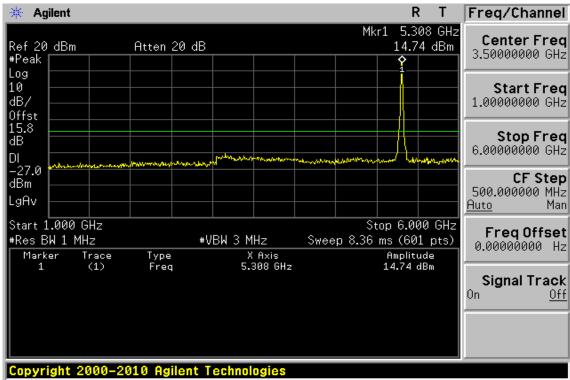
除非另有説明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。



Ch Mid 30MHz – 1GHz (5300 MHz)



Ch Mid 1GHz – 6GHz

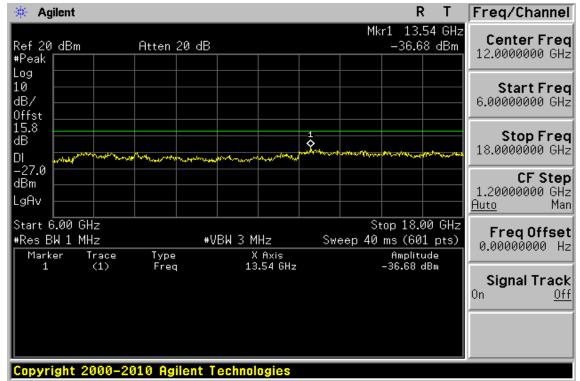


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

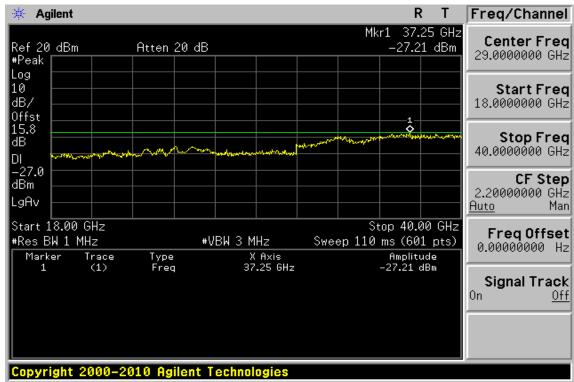
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Ch Mid 6GHz – 18GHz



Ch Mid 18GHz – 40GHz

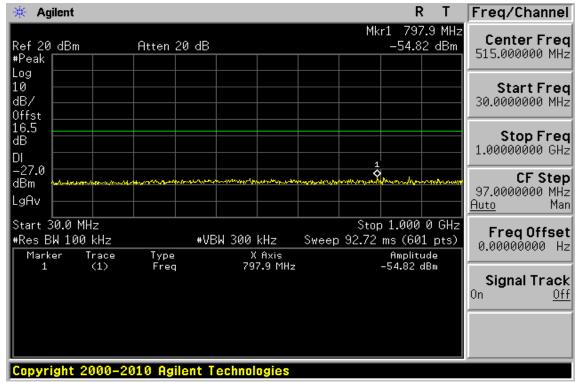


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

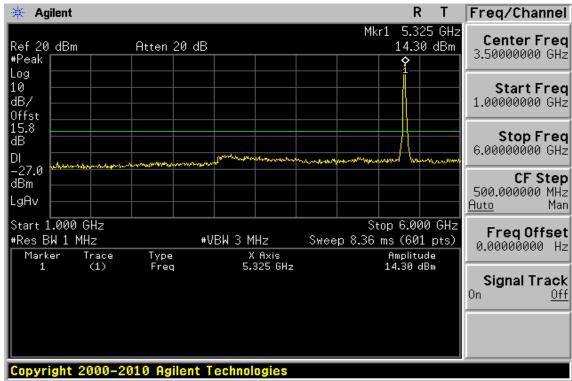
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Ch High 30MHz – 1GHz (5320 MHz)



Ch High 1GHz – 6GHz

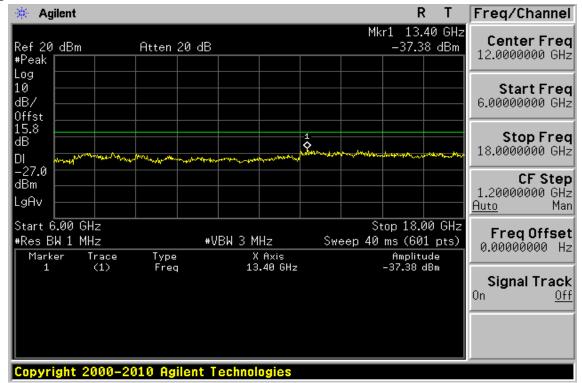


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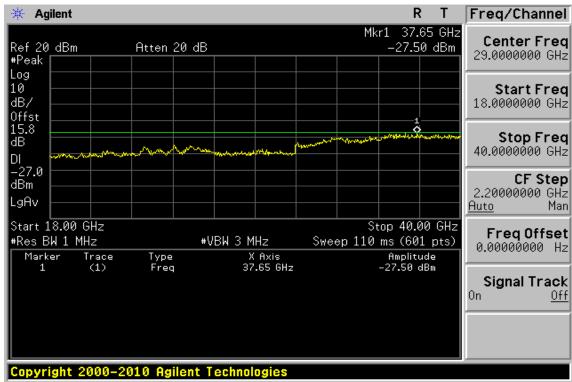
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Ch High 6GHz – 18GHz



Ch High 18GHz – 40GHz



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Out of Band emission at antenna terminals - 802.11a

Fundamental Frequency	5180 MHz	Engineer	:Nick
Operation Mode	:TX Low		

Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
<30	S		-27.00	
30-1000	S	-55.33	-27.00	28.33
10360.00	Н		-27.00	
13820.00	S	-37.11	-27.00	10.11
15540.00	Н		-27.00	
20720.00	Н		-27.00	
25900.00	Н		-27.00	
31080.00	Н		-27.00	
37490.00	S	-27.82	-27.00	0.82

"H": denotes Harmonic Frequency. "S": denotes Spurious Frequency. Note :

"---": denotes Noise Floor. Ref: Reference Signal

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Fundamental Frequency Operation Mode		5220 MHz :TX Mid	Engineer		:Nick	
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB	
	<30	S		-27.00		
	30-1000	S	-55.29	-27.00	28.29	
	10440.00	Н		-27.00		
	13600.00	S	-37.76	-27.00	10.76	
	15660.00	Н		-27.00		
	20880.00	Н		-27.00		
	26100.00	Н		-27.00		
	31320.00	Н		-27.00		
	36540.00	Н		-27.00		
	37980.00	S	-27.6	-27.00	0.60	

"H": denotes Harmonic Frequency. "S": denotes Spurious Frequency. Note : "---": denotes Noise Floor.

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Chiefs Softerwise stated the results shown in this test report feirer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the represented document. This document a further the represented parties of the Company and unstrained alteration of blogations under the represented documents. This document document is advised that and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or ap-pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.



Fundamental Frequency Operation Mode		5240 MHz :TX High	Engineer		:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-27.00	
	30-1000	S	-55.68	-27.00	28.68
	10480.00	Н		-27.00	
	15720.00	Н		-27.00	
	17640.00	S	-37.79	-27.00	10.79
	20960.00	Н		-27.00	
	26200.00	Н		-27.00	
	31440.00	Н		-27.00	
	36680.00	Н		-27.00	
	36960.00	S	-28.06	-27.00	1.06

"H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. Note : "---": denotes Noise Floor.

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Cofe

Fundamental Frequency Operation Mode	5260 MHz :TX Low	Engineer	:Nick

Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Sate Margin dB
<30	S		-27.00	
30-1000	S	-55.67	-27.00	28.67
10520.00	Н		-27.00	
13740.00	S	-38.32	-27.00	11.32
15780.00	Н		-27.00	
21040.00	Н		-27.00	
26300.00	Н		-27.00	
31560.00	Н		-27.00	
36820.00	Н		-27.00	
39490.00	S	-27.27	-27.00	0.27

"H": denotes Harmonic Frequency. "S": denotes Spurious Frequency. Note :

"---" : denotes Noise Floor. Ref: Reference Signal

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Fundamental Frequency Operation Mode		5300 MHz Engineer :TX Mid		eer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-27.00	
	30-1000	S	-55.16	-27.00	28.16
	10600.00	Н		-27.00	
	13540.00	S	-38.68	-27.00	11.68
	15900.00	Н		-27.00	
	21200.00	Н		-27.00	
	26500.00	Н		-27.00	
	31800.00	Н		-27.00	
	37100.00	Н		-27.00	
	37250.00	S	-27.71	-27.00	0.71

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



Fundamental Frequency Operation Mode		5320 MHz :TX High	Engineer		:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-27.00	
	30-1000	S	-54.82	-27.00	27.82
	10640.00	Н		-27.00	
	13400.00	S	-37.38	-27.00	10.38
	15960.00	Н		-27.00	
	21280.00	Н		-27.00	
	26600.00	Н		-27.00	
	31920.00	Н		-27.00	
	37240.00	Н		-27.00	
	37650.00	S	-27.50	-27.00	0.50

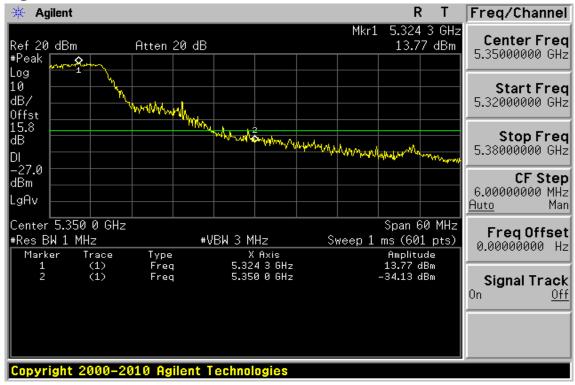
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802.11a 5150~5350 MHz Band Edges Test Data CH 5150



Band Edges Test Data CH 5350



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Tabular Results:

802.11a - Band Edge falling into un-restricted band

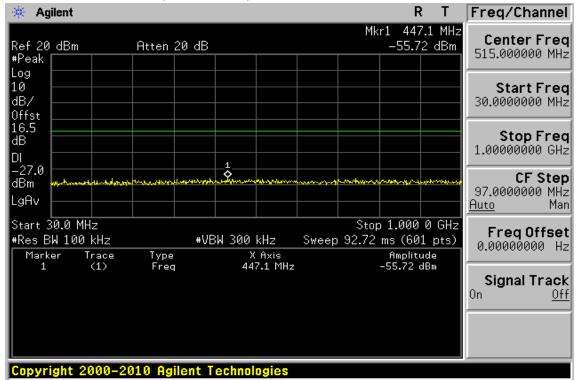
Frequency (GHz)	Results (dBm)	Limit (dBm)	Verdict
5.150	-36.18	-27.00	Pass
5.350	-34.13	-27.00	Pass

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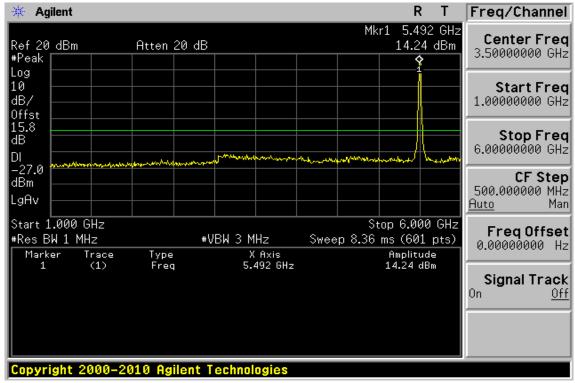
SGS Taiwan Ltd.	No.134,WuKungRoad,NewTaipeiIndu	strialPark,WukuDistrict,NewTaipeiCity,Tai	wan24803/新北市五股區新北產業園區五工路 134 號
台灣檢驗科技股份有限公司	t (886-2) 2299-3279	f (886-2) 2298-0488	www.tw.sgs.com



802.11a, 5470~5725 MHz Ch Low 30MHz - 1GHz (5500 MHz)







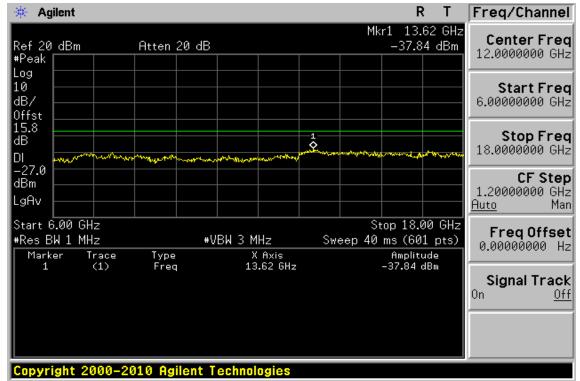
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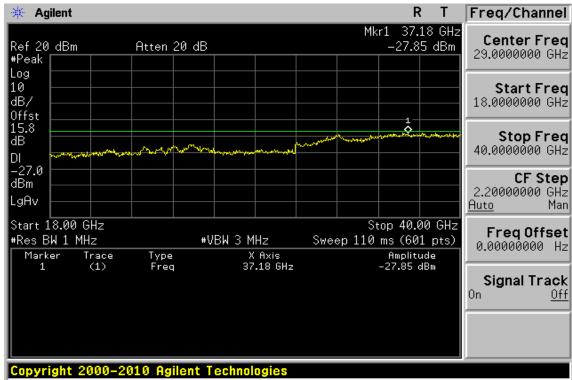
SGS Taiwan Ltd.	No.134,WuKungRoad,NewTaipeiInc	dustrialPark,WukuDistrict,NewTaipeiC	ity,1alwan24803/新北市五股區新北產業園區五工路 134 號
台灣檢驗科技股份有限公司	t (886-2) 2299-3279	f (886-2) 2298-0488	www.tw.sgs.com
			Member of SGS Group



Ch Low 6GHz – 18GHz



Ch Low 18GHz – 40GHz

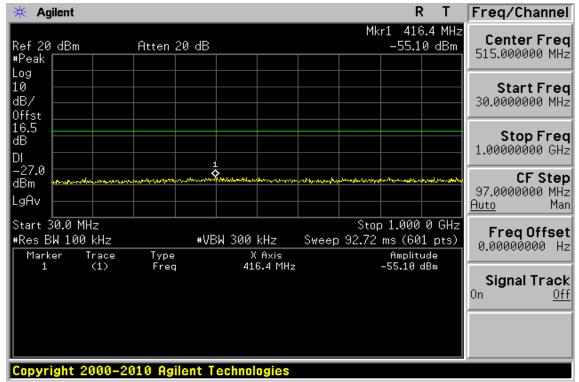


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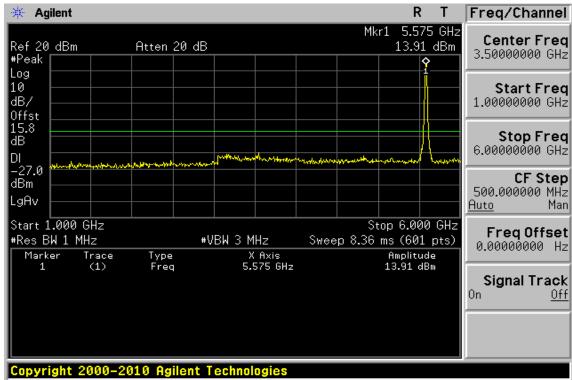
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Ch Mid 30MHz – 1GHz (5580 MHz)



Ch Mid 1GHz – 6GHz

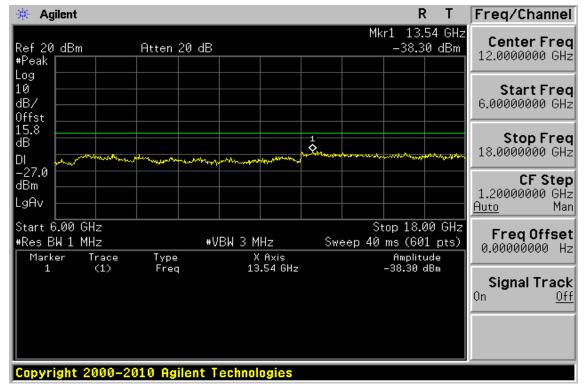


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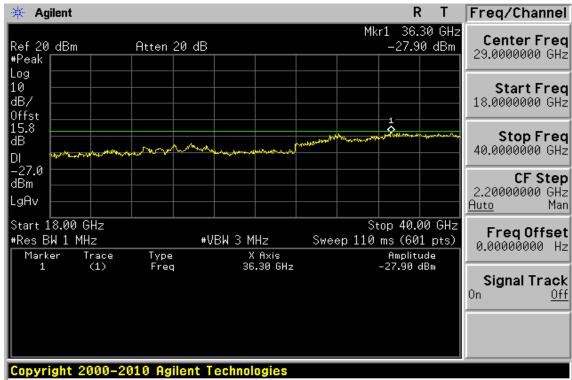
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Ch Mid 6GHz – 18GHz



Ch Mid 18GHz – 40GHz



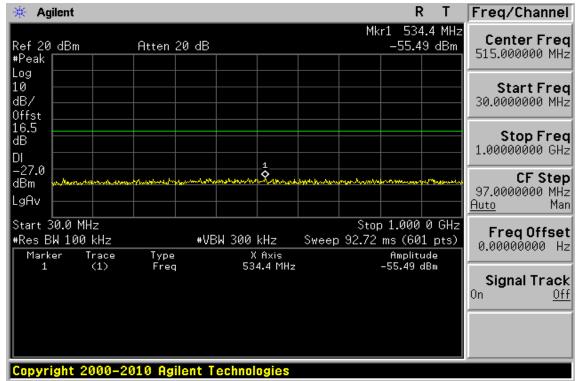
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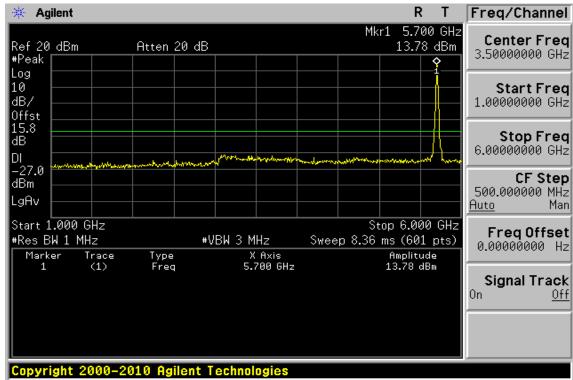
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台灣檢驗科技股份有限公司	t (886-2) 2299-3279	f (886-2) 2298-0488	www.tw.sgs.com



Ch High 30MHz – 1GHz (5700 MHz)



Ch High 1GHz – 6GHz

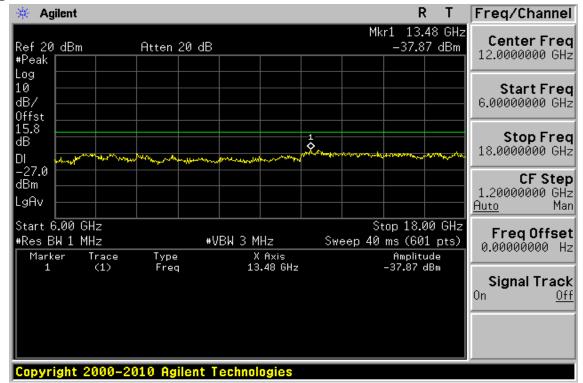


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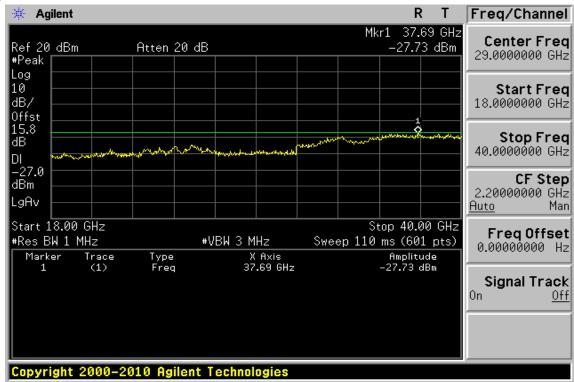
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Ch High 6GHz – 18GHz



Ch High 18GHz – 40GHz



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Out of Band emission at antenna terminals - 802.11a

Fundamental Frequency	5500 MHz	Engineer	:Nick
Operation Mode	:TX Low		

Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
<30	S		-27.00	
30-1000	S	-55.72	-27.00	28.72
11000.00	Н		-27.00	
13620.00	S	-37.84	-27.00	10.84
16500.00	Н		-27.00	
22000.00	Н		-27.00	
27500.00	Н		-27.00	
33000.00	Н		-27.00	
37180.00	S	-27.85	-27.00	0.85
38500.00	Н		-27.00	
58500.00	11		-27.00	

"H": denotes Harmonic Frequency. "S": denotes Spurious Frequency. Note :

"---" : denotes Noise Floor. Ref: Reference Signal

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



Fundamental Frequency Operation Mode		5580 MHz :TX Mid	Engineer		:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-27.00	
	<30-1000	S	-55.10	-27.00	28.10
	11160.00	Н		-27.00	
	13540.00	S	-38.30	-27.00	11.30
	16740.00	Н		-27.00	
	22320.00	Н		-27.00	
	27900.00	Н		-27.00	
	33480.00	Н		-27.00	
	36300.00	S	-27.90	-27.00	0.90
	39060.00	Н		-27.00	

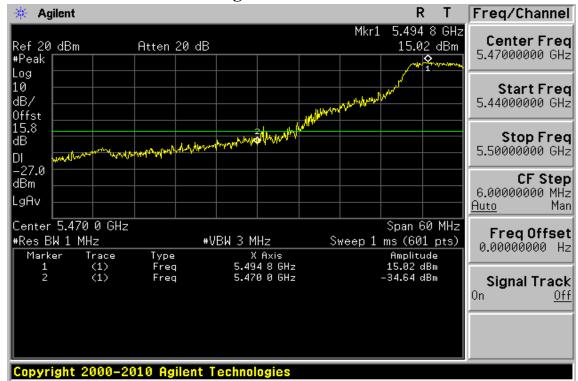
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



Fundamental Frequency Operation Mode		5700 MHz :TX High	Engine	eer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-27.00	
	30-1000	S	-55.49	-27.00	28.49
	11400.00	Н		-27.00	
	13480.00	S	-37.87	-27.00	10.87
	17100.00	Н		-27.00	
	22800.00	Н		-27.00	
	28500.00	Н		-27.00	
	34200.00	Н		-27.00	
	37690.00	S	-27.73	-27.00	0.73
	39900.00	Н		-27.00	

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.





802.11a 5470~5725 MHz Band Edges Test Data CH 5500

802.11a 5470~5725 MHz Band Edges Test Data CH 5700



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802.11a - Band Edge falling into un-restricted band

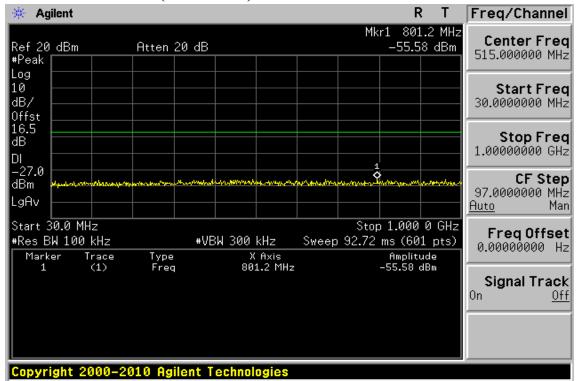
Frequency	(GHz) R	esults (dBm)	Limit (dBm)	Verdict
5.470)	-34.64	-27.00	Pass
5.725	;	-32.46	-27.00	Pass

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

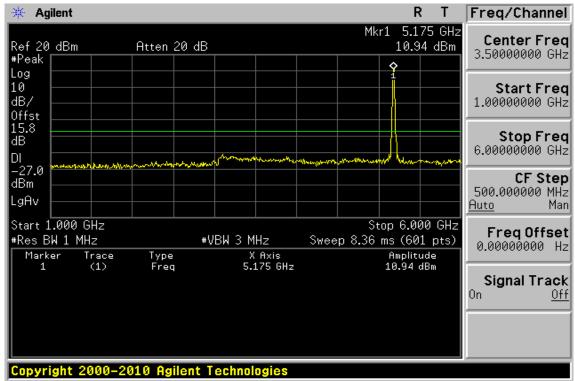
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802.11n HT20, 5150~5250 MHz Ch Low 30MHz – 1GHz (5180 MHz)



Ch Low 1GHz - 6GHz



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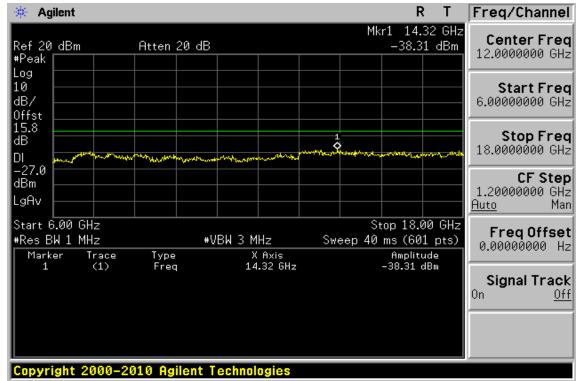
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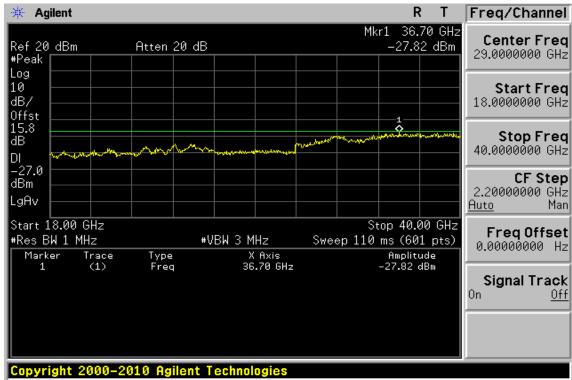
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台灣檢驗科技股份有限公司	t (886-2) 2299-3279	f (886-2) 2298-0488	www.tw.sgs.com	



Ch Low 6GHz – 18GHz



Ch Low 18GHz – 40GHz

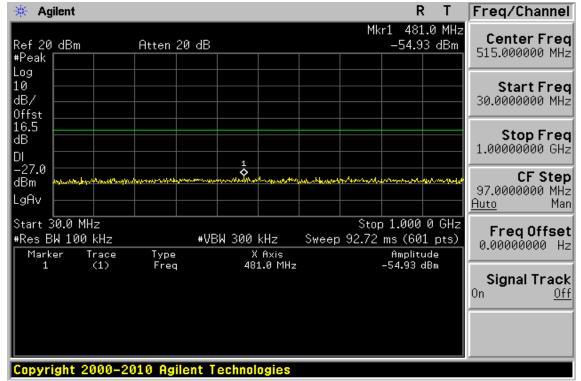


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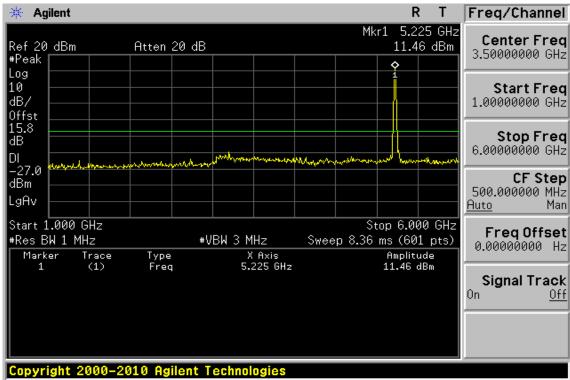
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Ch Mid 30MHz – 1GHz (5220 MHz)



Ch Mid 1GHz – 6GHz

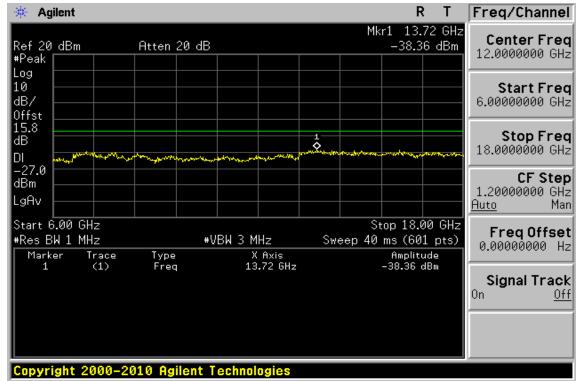


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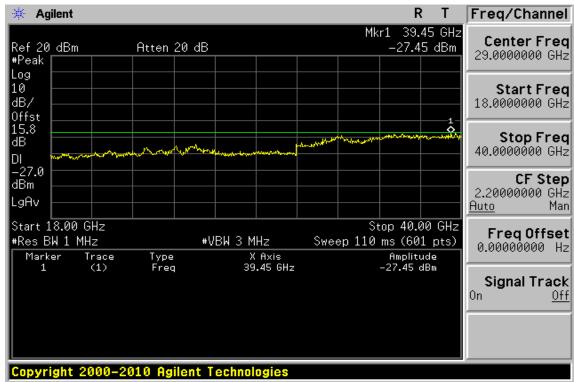
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Ch Mid 6GHz – 18GHz



Ch Mid 18GHz – 40GHz

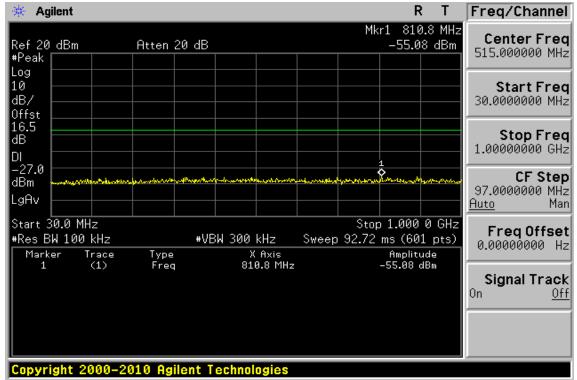


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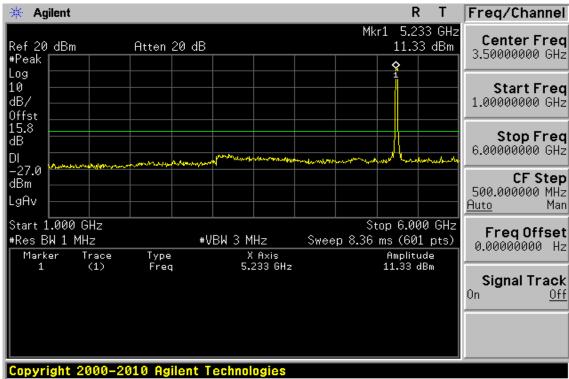
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Ch High 30MHz – 1GHz (5240 MHz)



Ch High 1GHz – 6GHz

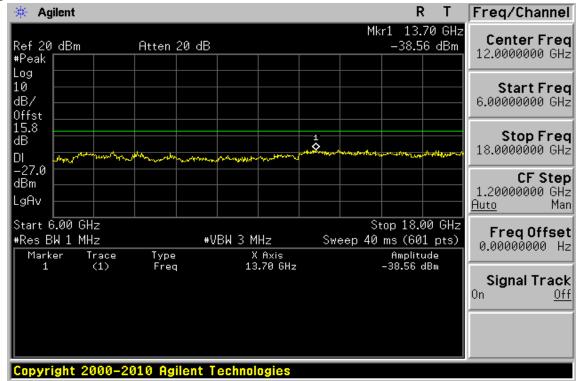


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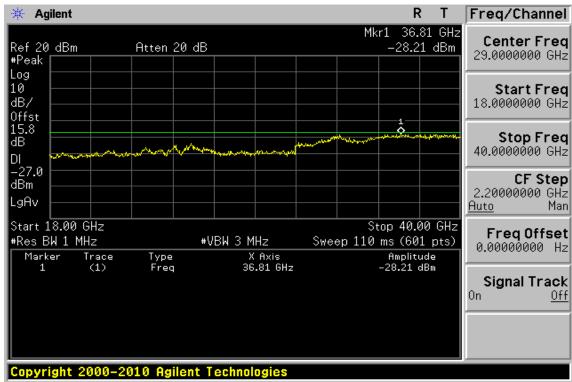
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Ch High 6GHz – 18GHz



Ch High 18GHz – 40GHz



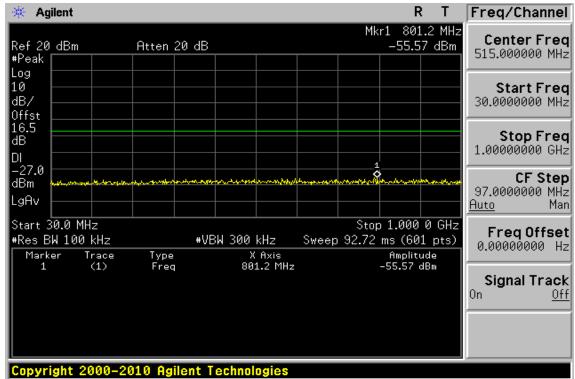
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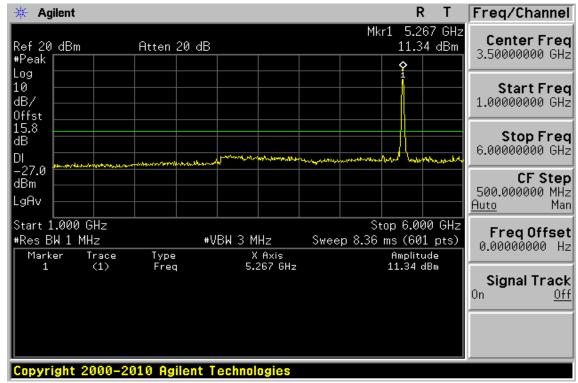
(ボキカオ) 就切 " 近根 守路 木健 町利気(人体の良良 " 同中式(株の) 保持 (1) 切 行び 休暇 守 無後 本公 可 音 面 計 可 * 小 可 市 (1) 夜 秋 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document is unlawful and offenders may be prosecuted to the fullest extent of the law.



802.11n HT20, 5250~5350 MHz Ch Low 30MHz – 1GHz (5260 MHz)





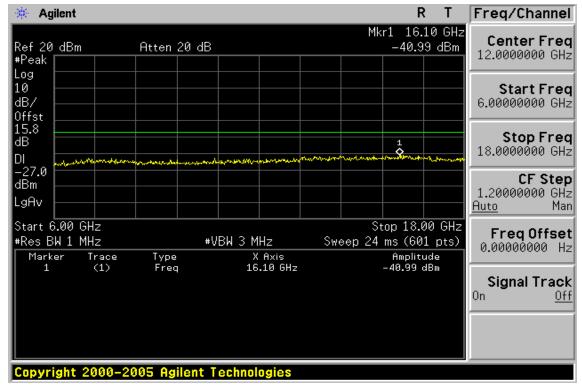


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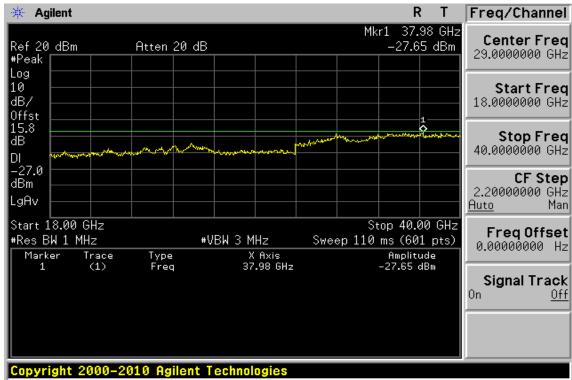
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Ch Low 6GHz - 18GHz



Ch Low 18GHz – 40GHz

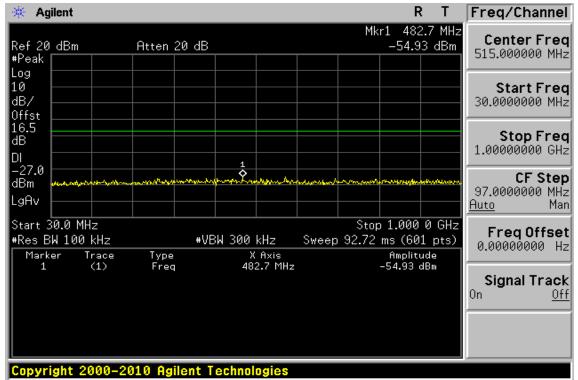


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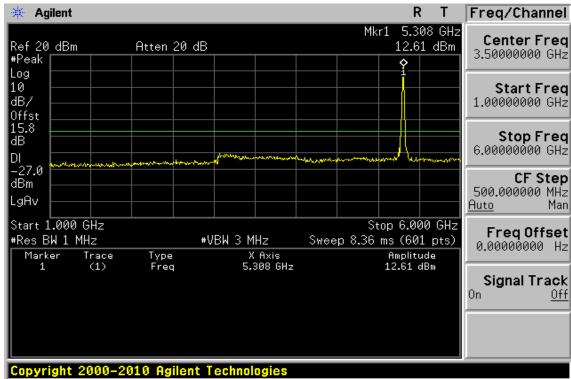
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Ch Mid 30MHz – 1GHz (5300 MHz)



Ch Mid 1GHz – 6GHz

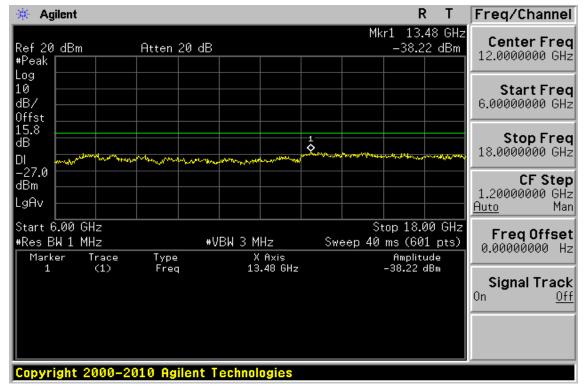


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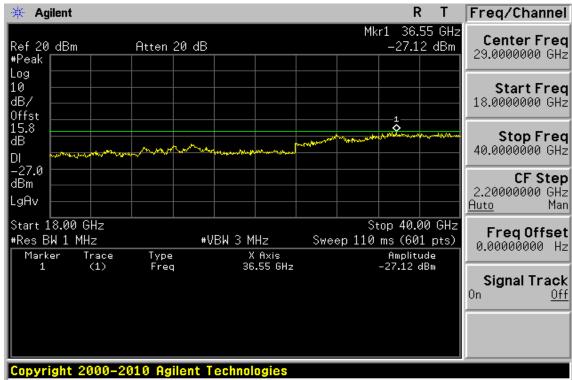
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Ch Mid 6GHz – 18GHz



Ch Mid 18GHz – 40GHz



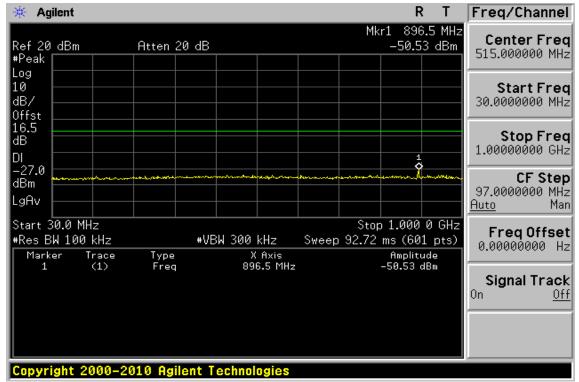
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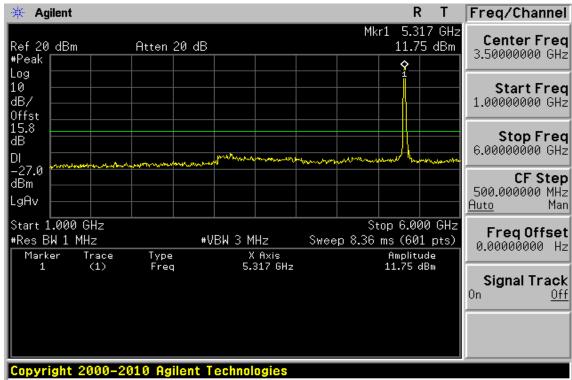
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Ch High 30MHz – 1GHz (5320 MHz)



Ch High 1GHz – 6GHz

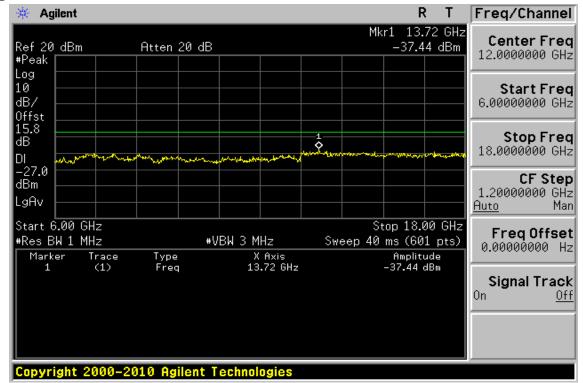


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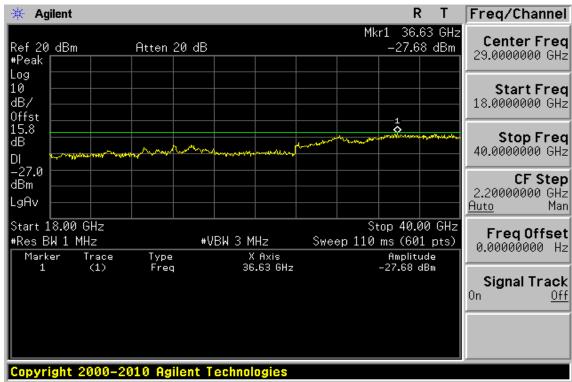
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Ch High 6GHz – 18GHz



Ch High 18GHz – 40GHz



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Out of Band emission at antenna terminals - 802.11n HT20

Fundamental Frequency	5180 MHz	Engineer	:Nick
Operation Mode	:TX Low		

Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
<30	S		-27.00	
30-1000	S	-55.58	-27.00	28.58
10360.00	Н		-27.00	
14320.00	S	-38.31	-27.00	11.31
15540.00	Н		-27.00	
20720.00	Н		-27.00	
25900.00	Н		-27.00	
31080.00	Н		-27.00	
36220.00	Н		-27.00	
36700.00	S	-27.82	-27.00	0.82

"H": denotes Harmonic Frequency. "S": denotes Spurious Frequency. Note :

"---" : denotes Noise Floor. Ref: Reference Signal

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



Fundamenta Operation N	al Frequency Mode	5220 MHz :TX Mid	Engine	eer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	.20	S		27.00	
	<30			-27.00	
	30-1000	S	-54.93	-27.00	27.93
	10440.00	Н		-27.00	
	13720.00	S	-38.36	-27.00	11.36
	15660.00	Н		-27.00	
	20880.00	Н		-27.00	
	26100.00	Н		-27.00	
	31320.00	Н		-27.00	
	36540.00	Н		-27.00	
	39450.00	S	-27.45	-27.00	0.45

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



Fundamenta Operation N	al Frequency Aode	5240 MHz :TX High	Engine	eer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-27.00	
	30-1000	S	-55.08	-27.00	28.08
	10480.00	Н		-27.00	
	13700.00	S	-38.56	-27.00	11.56
	15720.00	Н		-27.00	
	20960.00	Н		-27.00	
	26200.00	Н		-27.00	
	31440.00	Н		-27.00	
	36680.00	Н		-27.00	
	36810.00	S	-28.21	-27.00	1.21

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



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Fundamental Frequency	5260 MHz	Engineer	:Nick
Operation Mode	:TX Low		

	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
-					
	<30	S		-27.00	_
	30-1000	S	-55.57	-27.00	28.57
	10520.00	Н		-27.00	
	15780.00	Н		-27.00	
	16100.00	S	-40.99	-27.00	13.99
	21040.00	Н		-27.00	
	26300.00	Н		-27.00	
	31560.00	Н		-27.00	
	36820.00	Н		-27.00	
	37980.00	S	-27.65	-27.00	0.65

"H": denotes Harmonic Frequency. "S": denotes Spurious Frequency. Note :

"---" : denotes Noise Floor. Ref: Reference Signal

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



Fundamenta Operation N	al Frequency Aode	5300 MHz :TX Mid	Engine	eer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-27.00	
	30-1000	S	-54.93	-27.00	27.93
	10600.00	Н		-27.00	
	13480.00	S	-38.22	-27.00	11.22
	15900.00	Н		-27.00	
	21200.00	Н		-27.00	
	26500.00	Н		-27.00	
	31800.00	Н		-27.00	
	36550.00	S	-27.12	-27.00	0.12
	37100.00	Н		-27.00	
	37340.00	Н		-27.00	

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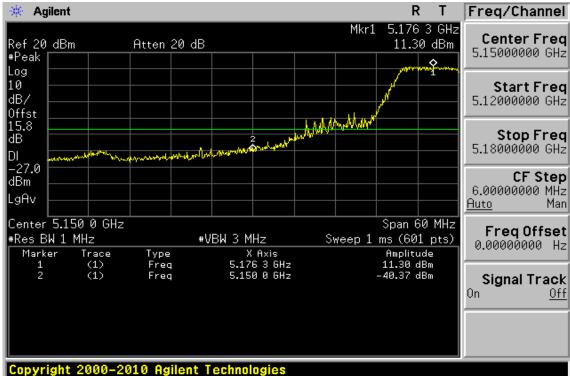


Fundamenta Operation N	al Frequency Mode	5320 MHz :TX High	Engine	eer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	-20	S		-27.00	
	<30				
	30-1000	S	-50.53	-27.00	23.53
	10640.00	Н		-27.00	
	13720.00	S	-37.44	-27.00	10.44
	15960.00	Н		-27.00	
	21280.00	Н		-27.00	
	26600.00	Н		-27.00	
	31920.00	Н		-27.00	
	36630.00	S	-27.68	-27.00	0.68
	37240.00	Н		-27.00	

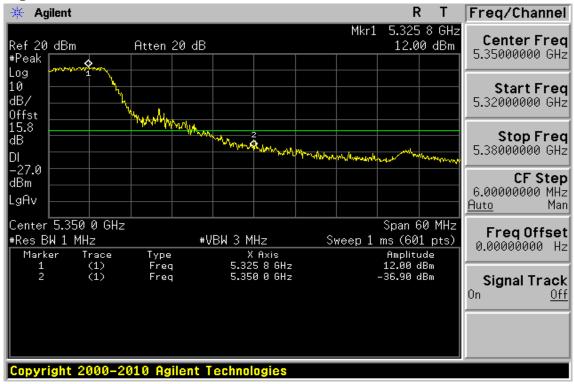
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802.11n HT20 5150~5350 MHz Band Edges Test Data CH 5150



Band Edges Test Data CH 5350



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802.11n HT20 - Band Edge falling into un-restricted band

Frequency (GHz)	Results (dBm)	Limit (dBm)	Verdict
5.150	-40.37	-27.00	Pass
5.350	-36.90	-27.00	Pass

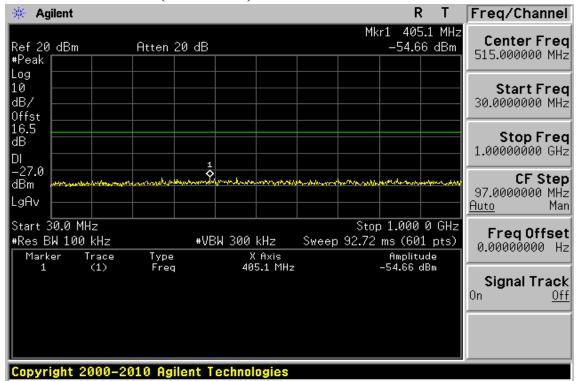
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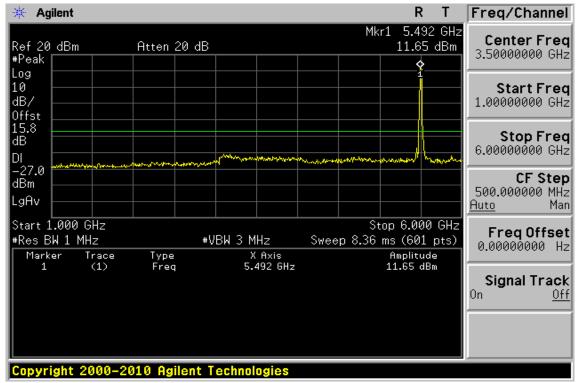
it is unlawful and offenders may be prosecuted to the fullest extent of the law.					
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802.11n HT20, 5470~5725 MHz Ch Low 30MHz – 1GHz (5500 MHz)



Ch Low 1GHz-6GH



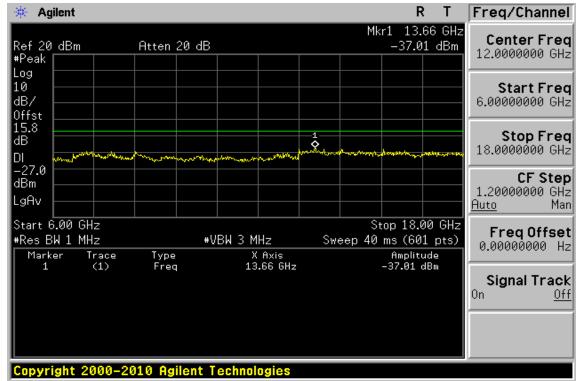
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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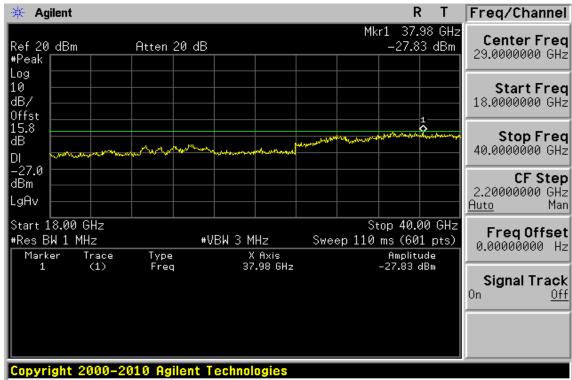
SGS Taiwan Ltd.	No.134,WuKungRoad,NewTaip	eiIndustrialPark,WukuDistrict,NewTaipeiCity	,1alwan24803/新北市五股區新北	產業園區五工路 134 號
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Ch Low 6GHz – 18GHz



Ch Low 18GHz – 40GHz

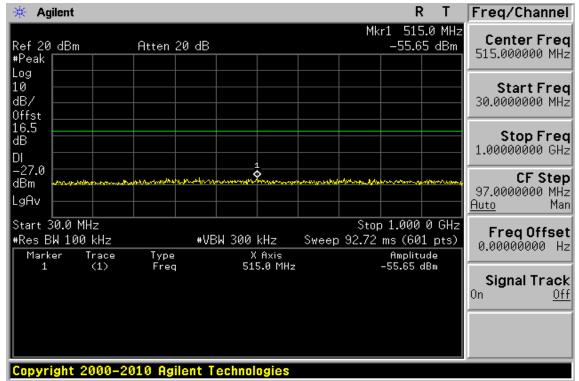


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

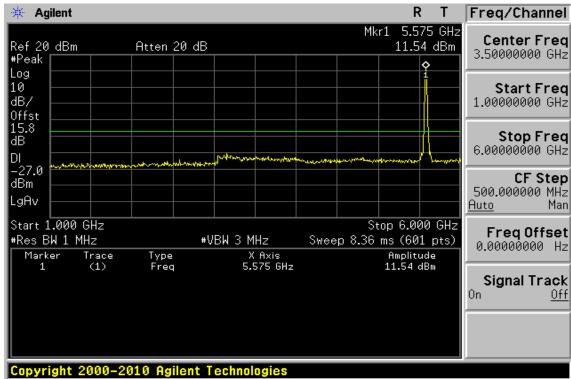
除非另有説明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。



Ch Mid 30MHz – 1GHz (5580 MHz)



Ch Mid 1GHz – 6GHz

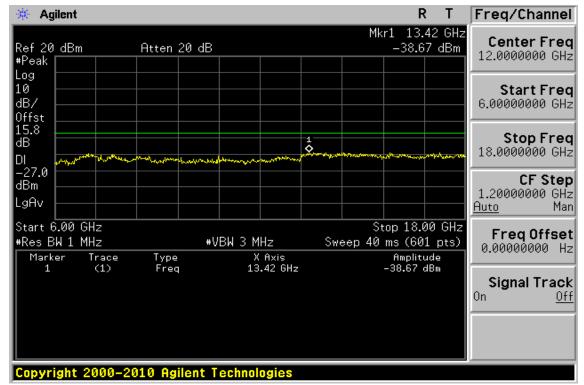


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

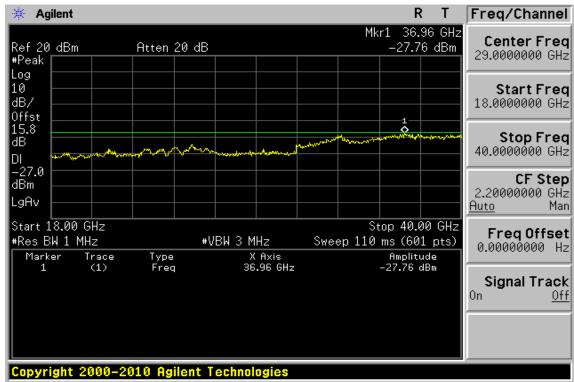
除非另有説明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。



Ch Mid 6GHz – 18GHz



Ch Mid 18GHz – 40GHz



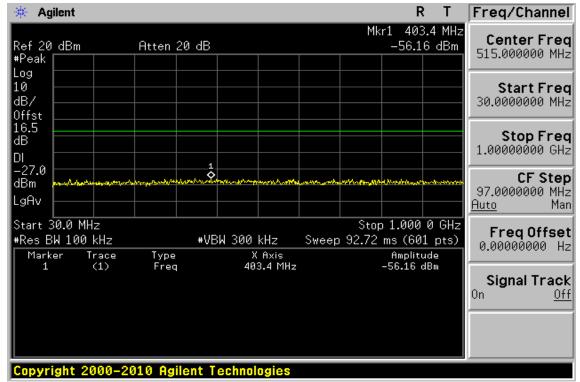
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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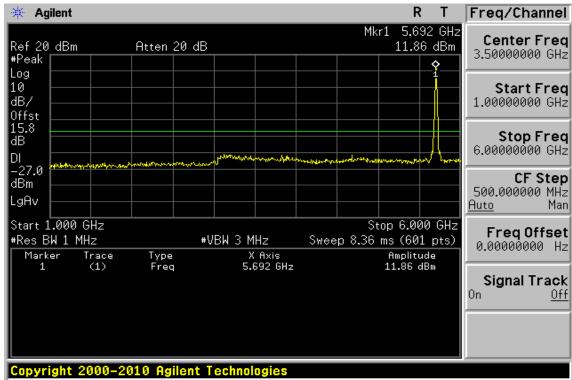
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Ch High 30MHz – 1GHz (5700 MHz)



Ch High 1GHz – 6GHz

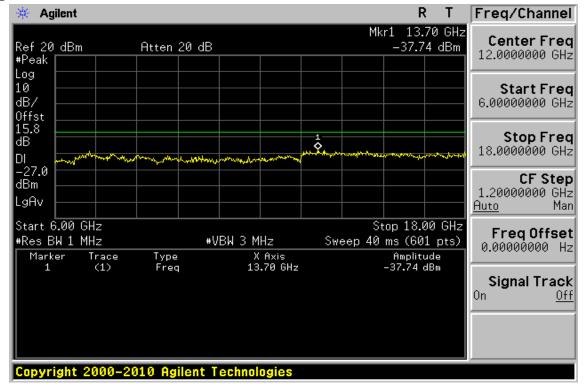


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

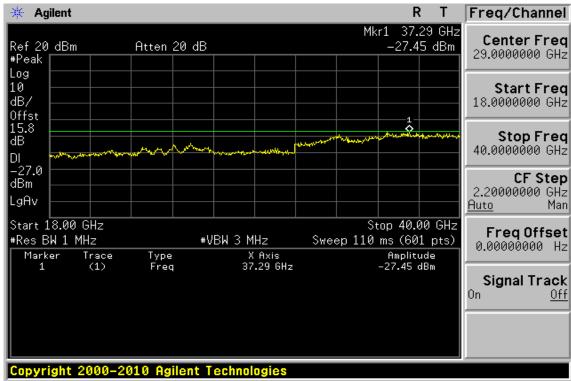
除非另有説明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。



Ch High 6GHz – 18GHz



Ch High 18GHz – 40GHz



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Out of Band emission at antenna terminals - 802.11n HT20

Fundamental Frequency	5500 MHz	Engineer	:Nick
Operation Mode	:TX Low		

Freq. (MIHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
<30	S		-27.00	_
30-1000	S	-54.66	-27.00	27.66
11000.00	Н		-27.00	
13660.00	S	-37.01	-27.00	10.01
16500.00	Н		-27.00	
22000.00	Н		-27.00	
27500.00	Н		-27.00	
33000.00	Н		-27.00	
37980.00	S	-27.83	-27.00	0.83
38500.00	Н		-27.00	_

"H": denotes Harmonic Frequency. "S": denotes Spurious Frequency. Note :

"---" : denotes Noise Floor. Ref: Reference Signal

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



Fundamental Frequency Operation Mode		5580 MHz Engineer :TX Mid		eer	:Nick	
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB	
	<30	S		-27.00		
	<30-1000	S	-55.65	-27.00	28.65	
	11160.00	Н		-27.00		
	13420.00	S	-38.67	-27.00	11.67	
	16740.00	Н		-27.00		
	22320.00	Н		-27.00		
	27900.00	Н		-27.00		
	33480.00	Н		-27.00		
	36960.00	S	-27.76	-27.00	0.76	
	39060.00	Н		-27.00		

"H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. Note : "---": denotes Noise Floor.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



Fundamental Frequency Operation Mode		5700 MHz Engineer :TX High		eer	:Nick	
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB	
	<30	S		-27.00		
	30-1000	S	-56.16	-27.00	29.16	
	11400.00	Н		-27.00		
	13700.00	S	-37.74	-27.00	10.74	
	17100.00	Н		-27.00		
	22800.00	Н		-27.00		
	28500.00	Н		-27.00		
	34200.00	Н		-27.00		
	37290.00	S	-27.45	-27.00	0.45	
	39900.00	Н		-27.00		

"H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. Note : "---": denotes Noise Floor.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



802.11n HT20 5470~5725 MHz Band Edges Test Data CH 5500



802.11n HT20 5470~5725 MHz Band Edges Test Data CH 5700



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802.11n HT20 - Band Edge falling into un-restricted band

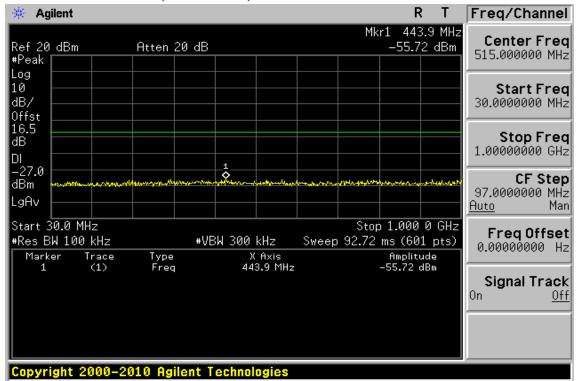
Frequency (GHz)	Results (dBm)	Limit (dBm)	Verdict
5.470	-40.03	-27.00	Pass
5.725	-30.44	-27.00	Pass

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

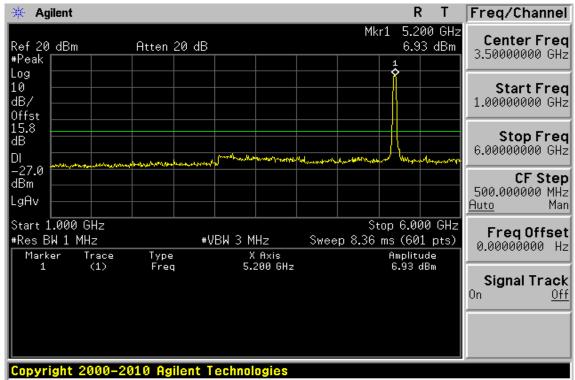
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802.11n HT40, 5150~5250 MHz Ch Low 30MHz – 1GHz (5190 MHz)



Ch Low 1GHz - 6GHz



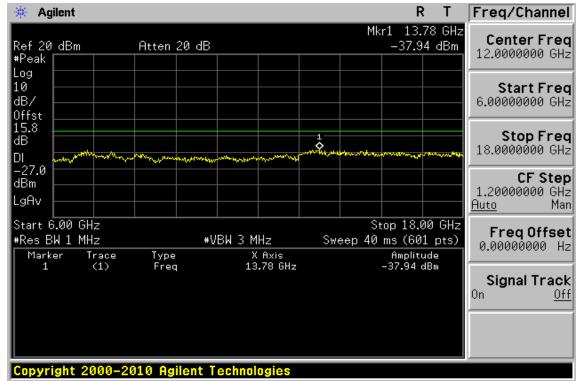
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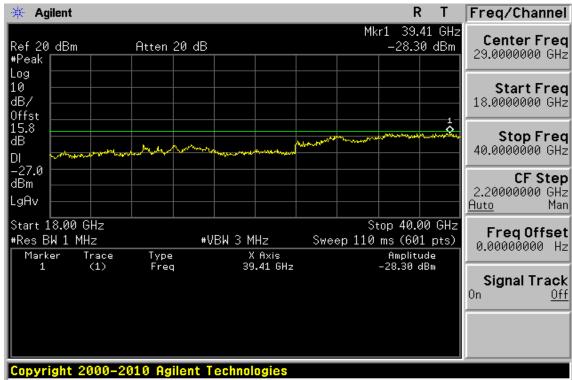
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Ch Low 6GHz – 18GHz



Ch Low 18GHz – 40GHz

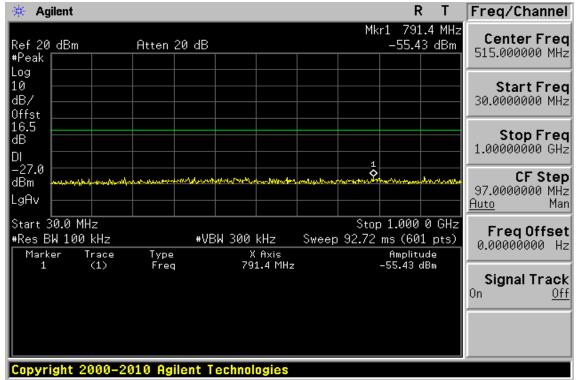


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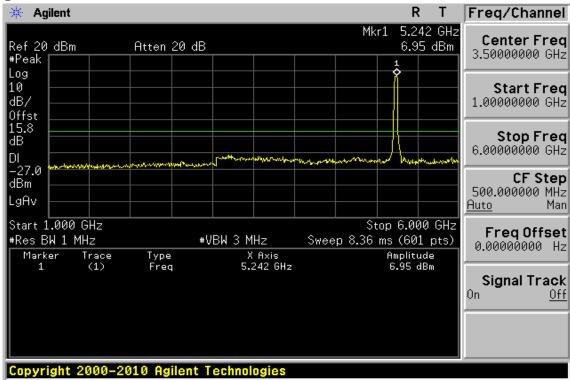
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Ch High 30MHz – 1GHz (5230 MHz)



Ch High 1GHz – 6GHz

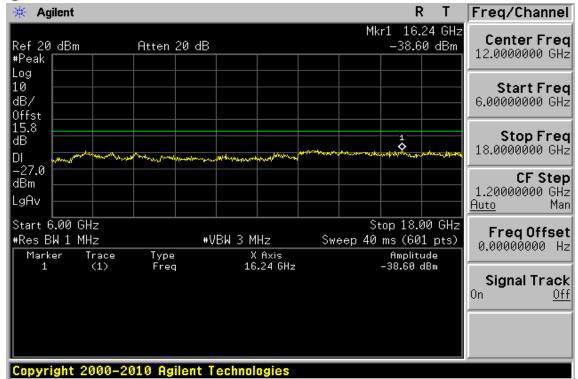


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

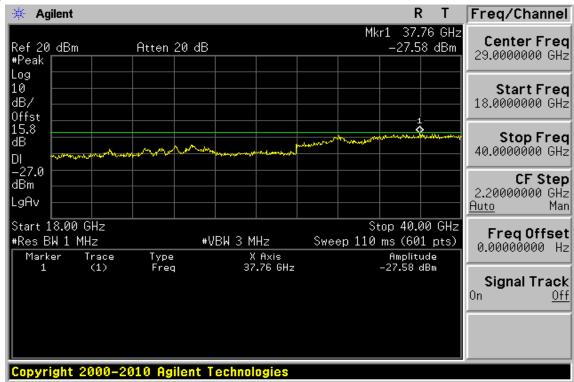
除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。



Ch High 6GHz – 18GHz



Ch High 18GHz – 40GHz



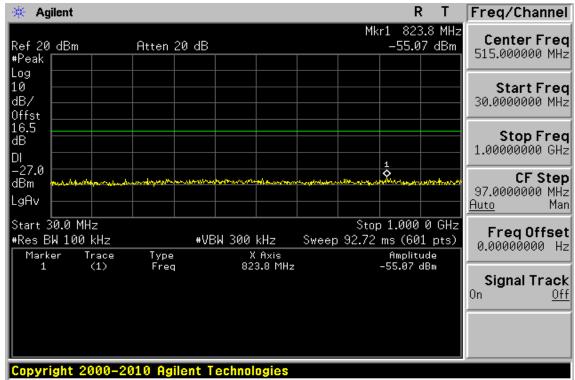
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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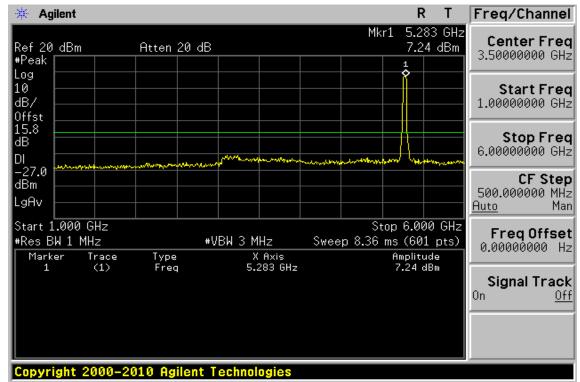




802.11n HT40, 5250~5350 MHz Ch Low 30MHz – 1GHz (5270 MHz)



Ch Low 1GHz - 6GHz

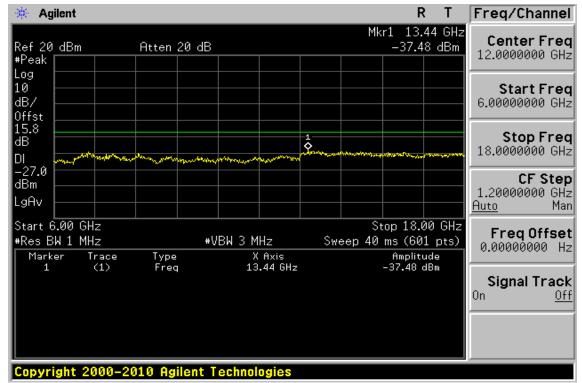


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

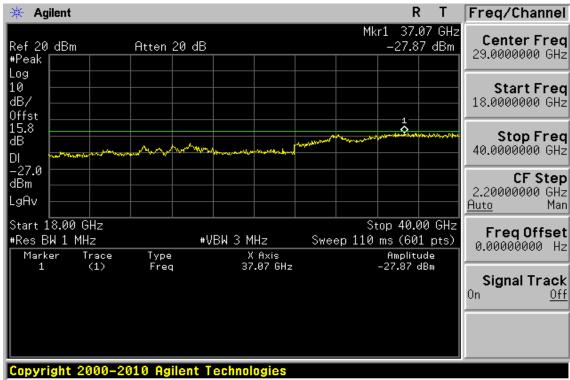
除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。



Ch Low 6GHz - 18GHz



Ch Low 18GHz – 40GHz

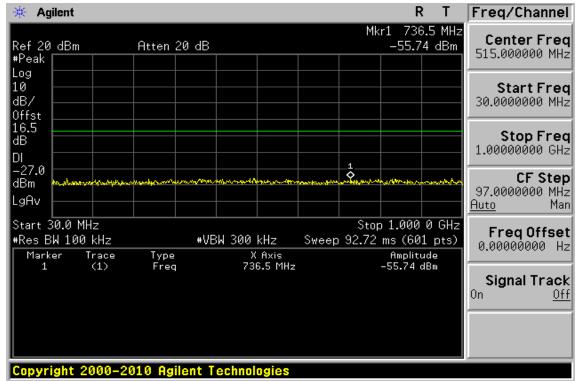


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

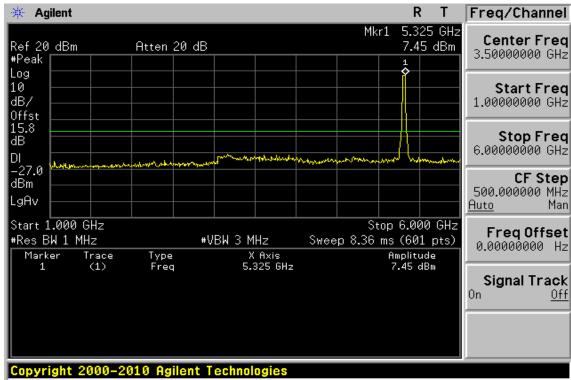
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Ch High 30MHz – 1GHz (5310 MHz)



Ch High 1GHz – 6GHz

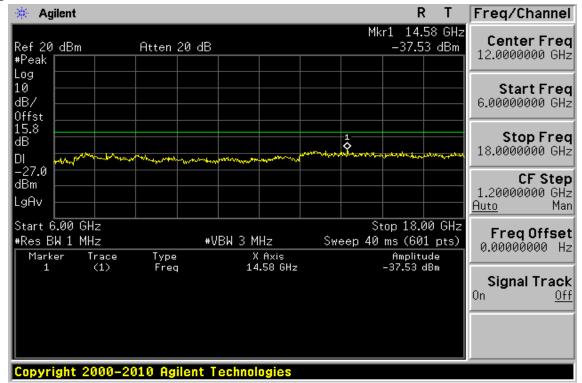


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

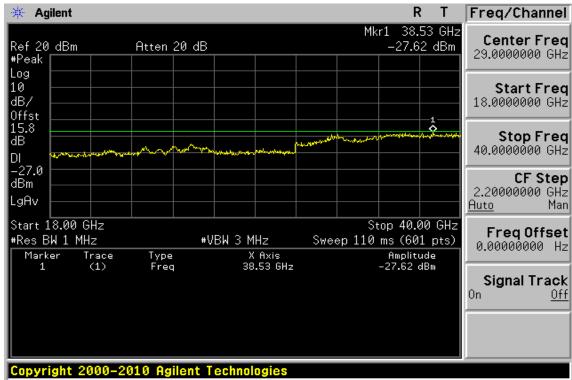
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Ch High 6GHz – 18GHz



Ch High 18GHz – 40GHz



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Out of Band emission at antenna terminals - 802.11n HT40

Fundamental Frequency	5190 MHz	Engineer	:Nick
Operation Mode	:TX Low		

Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
<30	S		-27.00	
30-1000	S	-55.72	-27.00	28.72
10380.00	Н		-27.00	
13780.00	S	-37.94	-27.00	10.94
15570.00	Н		-27.00	
20760.00	Н		-27.00	
25950.00	Н		-27.00	
31140.00	Н		-27.00	
36300.00	Н		-27.00	
39410.00	S	-28.3	-27.00	1.30

"H": denotes Harmonic Frequency. "S": denotes Spurious Frequency. Note : "---": denotes Noise Floor. Ref: Reference Signal

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Fundamental Frequency Operation Mode		5230 MHz Engine :TX High		eer :Nick	
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-27.00	
	30-1000	S	-55.43	-27.00	28.43
	10460.00	Н		-27.00	
	16240.00	S	-38.60	-27.00	11.60
	15690.00	Н		-27.00	
	20920.00	Н		-27.00	
	26150.00	Н		-27.00	
	31380.00	Н		-27.00	
	36610.00	Н		-27.00	
	37760.00	S	-27.58	-27.00	0.58

"H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. Note : "---": denotes Noise Floor.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



Fundamental Frequency Operation Mode		5270 MHz Engineer :TX Low		eer	:Nick	
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB	
	<30	S		-27.00		
	30-1000	S	-55.07	-27.00	28.07	
	10540.00	Н		-27.00		
	13440.00	S	-37.48	-27.00	10.48	
	15810.00	Н		-27.00		
	21080.00	Н		-27.00		
	26350.00	Н		-27.00		
	31620.00	Н		-27.00		
	36890.00	Н		-27.00		
	37070.00	S	-27.87	-27.00	0.87	

"H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. Note : "---": denotes Noise Floor.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



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Fundamental Frequency 5310 MHz Engineer :Nick **Operation Mode** :TX High

Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
<30	S		-27.00	
30-1000	S	-55.74	-27.00	28.74
10540.00	Н		-27.00	_
14580.00	S	-37.53	-27.00	10.53
15810.00	Н		-27.00	
21080.00	Н		-27.00	
26350.00	Н		-27.00	
31620.00	Н		-27.00	
36890.00	Н		-27.00	
38530.00	S	-27.62	-27.00	0.62

"H": denotes Harmonic Frequency. "S": denotes Spurious Frequency. Note :

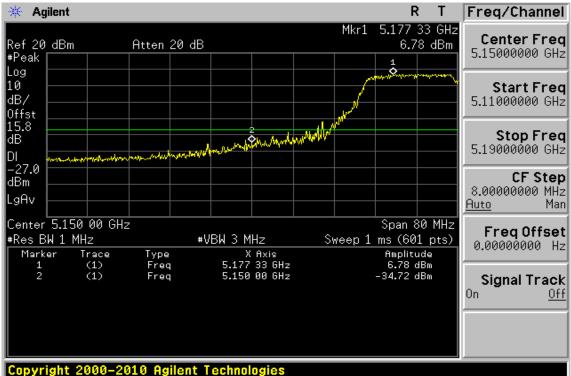
"---" : denotes Noise Floor. Ref: Reference Signal

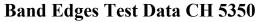
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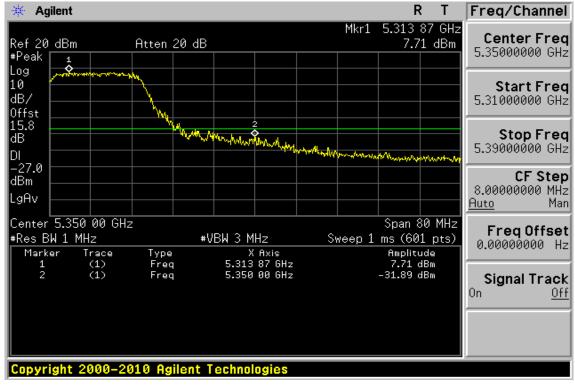


802.11n HT40 5150~5350 MHz

Band Edges Test Data CH 5150







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802.11n HT40 - Band Edge falling into un-restricted band

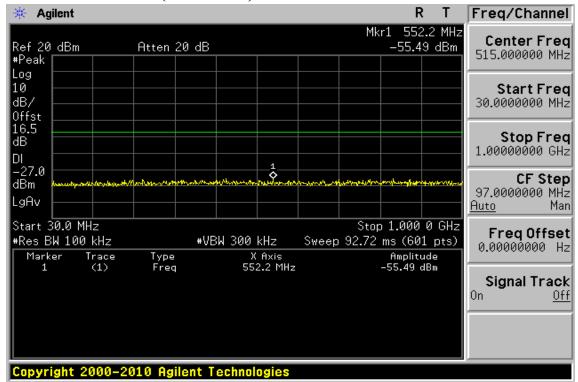
Frequency (GHz)	Results (dBm)	Limit (dBm)	Verdict
5.150	-34.72	-27.00	Pass
5.350	-31.89	-27.00	Pass

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

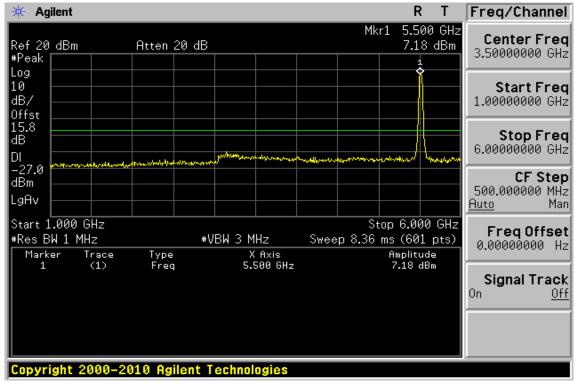
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802.11n HT40, 5470~5725 MHz Ch Low 30MHz – 1GHz (5510 MHz)





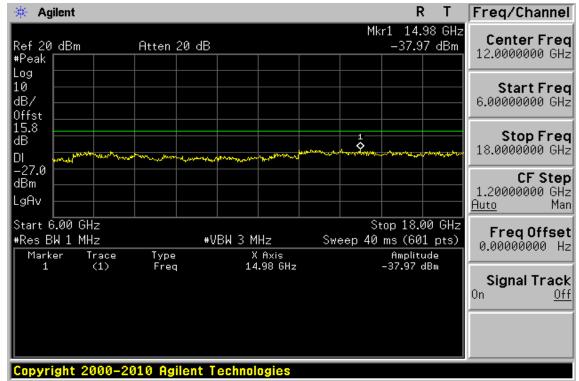


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

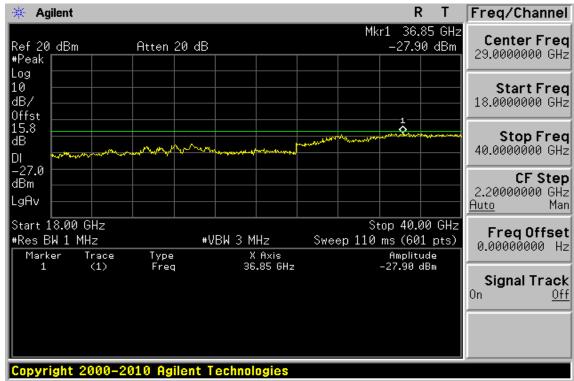
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Ch Low 6GHz – 18GHz



Ch Low 18GHz – 40GHz

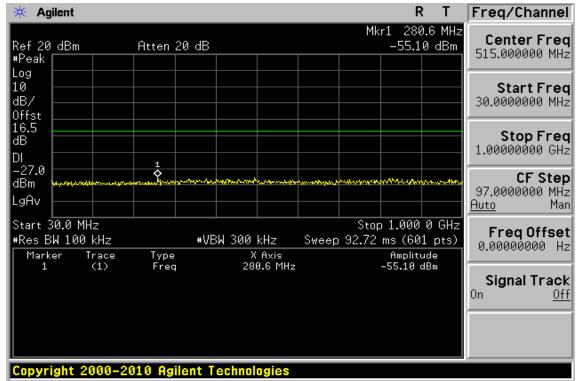


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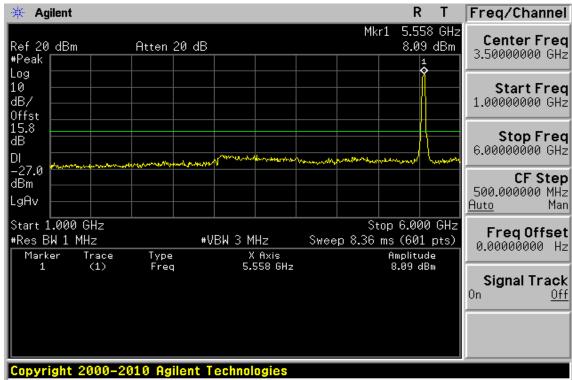
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Ch Mid 30MHz – 1GHz (5550 MHz)



Ch Mid 1GHz – 6GHz

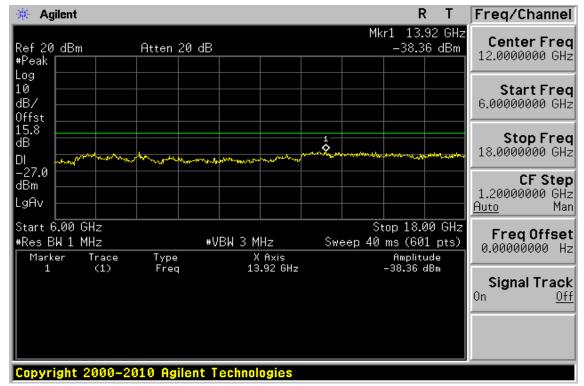


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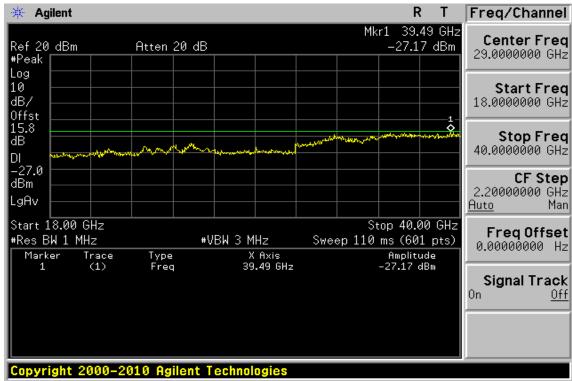
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Ch Mid 6GHz – 18GHz



Ch Mid 18GHz – 40GHz

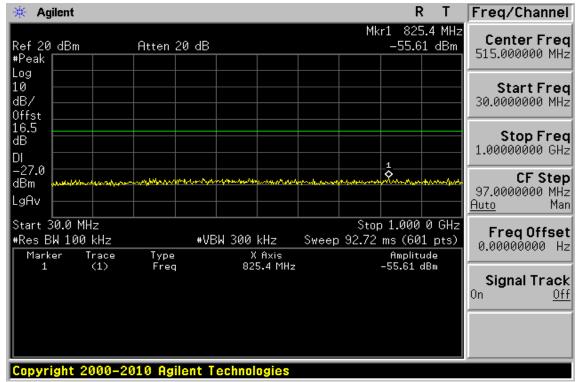


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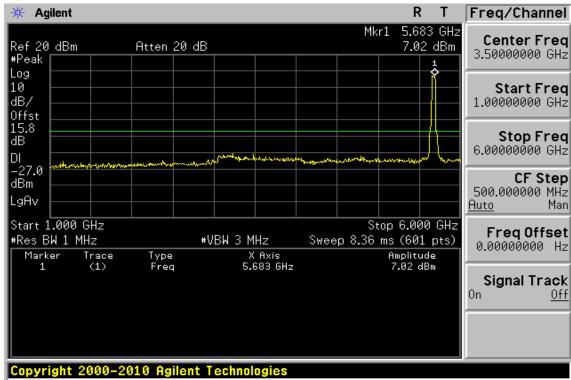
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Ch High 30MHz - 1GHz (5670 MHz)



Ch High 1GHz – 6GHz

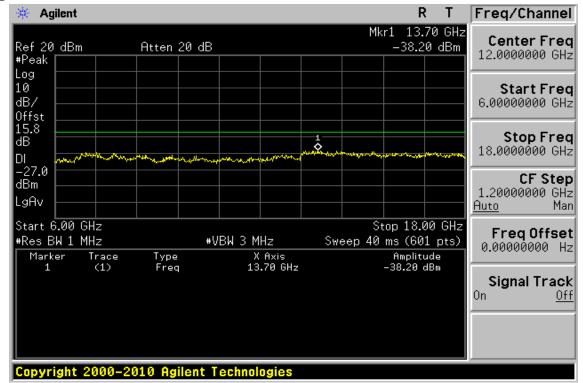


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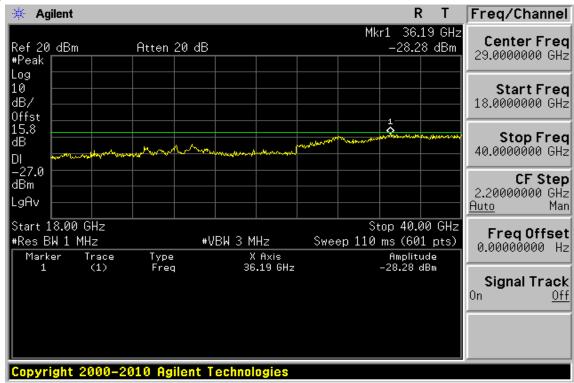
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Ch High 6GHz – 18GHz



Ch High 18GHz – 40GHz



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Fundamental Frequency	5510 MHz	Engineer	:Nick
Operation Mode	:TX Low		

Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
<30	S		-27.00	_
30-1000	S	-55.49	-27.00	28.49
11020.00	Н		-27.00	
14980.00	S	-37.97	-27.00	10.97
16530.00	Н		-27.00	
22040.00	Н		-27.00	
27550.00	Н		-27.00	
33060.00	Н		-27.00	
36850.00	S	-27.90	-27.00	0.90
38570.00	Н		-27.00	

"H": denotes Harmonic Frequency. "S": denotes Spurious Frequency. Note :

"---" : denotes Noise Floor. Ref: Reference Signal

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



Fundamenta Operation N	al Frequency Mode	5550 MHz :TX Mid	Engine	eer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-27.00	
	30-1000	S	-55.10	-27.00	28.10
	11100.00	Н		-27.00	
	13920.00	S	-38.36	-27.00	11.36
	16650.00	Н		-27.00	
	22200.00	Н		-27.00	
	27750.00	Н		-27.00	
	33300.00	Н		-27.00	
	38850.00	Н		-27.00	
	39490.00	S	-27.17	-27.00	0.17

"H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. Note : "---": denotes Noise Floor.

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Fundamenta Operation N	al Frequency Mode	5670 MHz :TX High	Engine	eer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-27.00	
	30-1000	S	-55.61	-27.00	28.61
	11340.00	Н		-27.00	
	13700.00	S	-38.20	-27.00	11.20
	17010.00	Н		-27.00	
	22680.00	Н		-27.00	
	28350.00	Н		-27.00	
	34020.00	Н		-27.00	
	36190.00	S	-28.28	-27.00	1.28
	39690.00	Н		-27.00	

"H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. Note : "---": denotes Noise Floor.

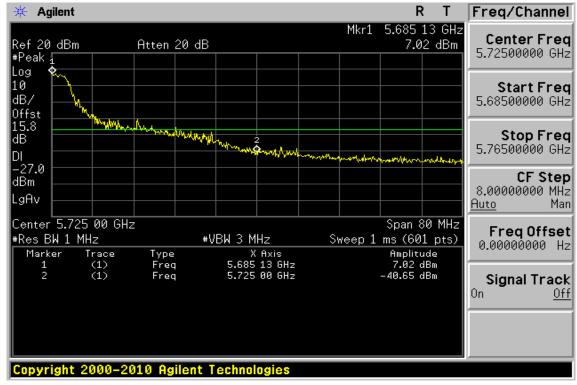
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802.11n HT40 5470~5725 MHz Band Edges Test Data CH 5510



802.11n HT40 5470~5725 MHz Band Edges Test Data CH 5670



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802.11n HT40 - Band Edge falling into un-restricted band

Frequency (GHz)	Results (dBm)	Limit (dBm)	Verdict
5.470	-33.28	-27.00	Pass
5.725	-40.65	-27.00	Pass

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12. UNDESIRABLE EMISSION - RADIATED MEASUREMENT12.1 Standard Applicable

According to §15.407(b) (6) (7),

(b) Undesirable Emission Limits: Except as shown in Paragraph (b)(6) of this section, the peak emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in Section 15.207.
- (2) The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.
- (3) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency block edges as the design of the equipment permits.

Procedure H1) a) b) c) are adopted, KDB 789033 D01, where the conducted measurement is being used to comply with out of emission requirement as per FCC 15.407 b) 6) 7).

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§15.205- RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	(²)
13.36 - 13.41	322 - 335.4		

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

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§15.209- RADIATED EMISSION LIMITS: GENERAL REQUIREMENTS

FCC PART 15.209					
MEASUR	ING DISTANCE OF 3 MET	ER			
FREQUENCY RANGE	FIELD STRENGTH	FIELD STRENGTH			
(MHz) (Microvolts/m) (dBuV/m)					
30-88	40				
88-216	150	43.5			
216-960 200 46					
Above 960	500	54			

12.1.1 Transmitter Spurious Emission Limits

Spurious emissions from licence-exempt transmitters shall comply with the field strength limits shown below. Additionally, the level of any transmitter spurious emission shall not exceed the level of the transmitter's fundamental emission.

Table 5: General Field Strength Limits for Transmitters at Frequencies Above 30 MHz

Frequency (MHz)	Field Strength (microvolt/m at 3 metres)
30-88	100
88-216	150
216-960	200
Above 960	500

Note: Transmitting devices are not permitted in Table 1 bands or, unless stated otherwise, in TV bands (54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz and 614-806 MHz).

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12.1.2 Unwanted Emission that complies with the undesirable emission ruling by 15.407 (b) (1) (2) (3)

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at
		3m (dBuV/m)
5150 - 5250	-27	68.3
5250 - 5350	-27	68.3
5470 - 5725	-27	68.3

Limit derivation in terms of Field Strength:

EIRP = $((E^*d)^2)/30$, where E is the field in V/m, d is the measurement distance (3m), EIRP is the equivalent isotropically radiated power in Watts.

 $E = 1000000* (30*EIRP)^{(1/2)} / 3 uV/m$ = 68.3 dBuV/m

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12.2 EUT Setup

- 1. The radiated emission tests were performed in the 3 meter open-test site, using the setup in accordance with the ANSI C63.4:2009 & ANSI C63.10:2009.
- 2. The EUT was put in the front of the test table. The host PC system was placed on the center of the back edge on the test table. The peripherals like modem, monitor printer, K/B, and mouse were placed on the side of the host PC system. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
- 3. The keyboard was placed directly in the front of the monitor, flushed with the front tabletop. The mouse was placed next to the Keyboard, flushed with the back of keyboard.
- 4. The spacing between the peripherals was 10 centimeters.
- 5. External I/O cables were draped along the edge of the test table and bundle when necessary.
- 6. The host PC system was connected with 120Vac/60Hz power source.

12.3 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.

For measurements below 1GHz, follow the KDB 789033 D01 requirements in section H)3), "General Requirements for Unwanted Emissions Measurements" Compliance shall be demonstrated using CISPR quasi-peak detection; however, peak detection is permitted as an alternative to quasi-peak detection.

For Measurement above 1GHz, for peak unwanted emission measurements follow the KDB 789033 D01 requirements in section H)5) b), for average unwanted emission measurements follow the KDB 789033 D01 requirements in section H)6) c) or d).

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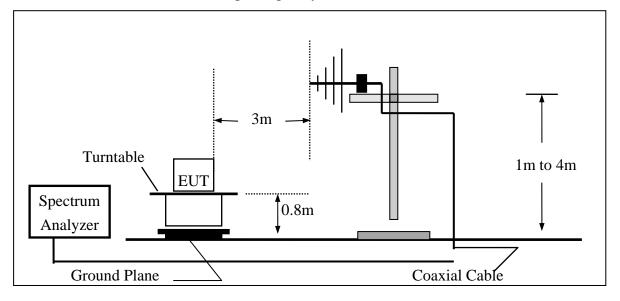
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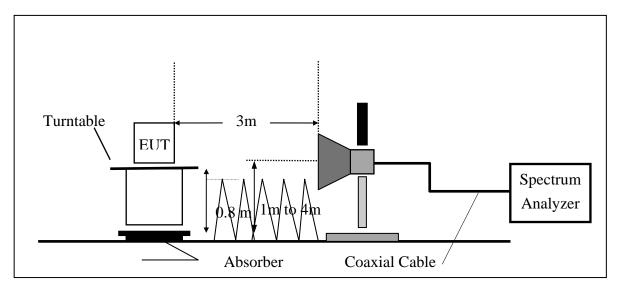


12.4 Test SET-UP (Block Diagram of Configuration)

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



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



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Measurement Equipment Used: 12.5

966 Chamber							
EQUIPMENT	MFR MODEL SERIAL LAST CALDUE.						
ТҮРЕ		NUMBER	NUMBER	CAL.			
EMI Test Receiver	R&S	ESCI7	100760	05/27/2013	05/26/2014		
Spectrum Analyzer	Agilent	E4446A	MY51100003	05/30/2013	05/29/2014		
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	01/20/2014	01/19/2015		
Spectrum Analyzer	R&S	FSV-30	101398	10/22/2013	10/21/2014		
Bilog Antenna	SCHWAZBECK	VULB9168	378	01/02/2014	01/02/2015		
Horn antenna	ETS.LINDGREN	3117	123995	05/31/2013	05/30/2014		
Horn Antenna	Schwarzbeck	BBHA9170	184	01/23/2014	01/22/2015		
Pre-Amplifier	EMC Instruments Corp.			01/03/2014	01/02/2015		
Pre-Amplifier	Agilent	8447D	2944A07676	01/03/2014	01/02/2015		
Pre-Amplifier	Agilent	8449B	3008A00578	01/03/2014	01/02/2015		
Pre-Amplifier	EMC Instruments Corp.	EMC184045	980135	01/24/2014	01/23/2015		
5150-5350 Band Reject Filter	Micro-Tronics	BRM50703	1	01/03/2014	01/02/2015		
5470-5725 Band Reject Filter	Micro-Tronics	BRM50704	1	01/03/2014	01/02/2015		
5725-5875 Band Reject Filter	Micro-Tronics	BRM50705	1	01/03/2014	01/02/2015		
1GHz High Pass Filter	Micro-Tronics	HPM50108	32	02/27/2014	02/26/2015		
2GHz High Pass Filter	Micro-Tronics	HPM50110	36	02/27/2014	02/26/2015		
Attenuator	Mini-Circuit	BW-S10W2+	002	02/27/2014	02/26/2015		
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	966_Rx	9	01/03/2014	01/02/2015		
3m Site NSA	SGS	966 chamber	N/A	07/15/2013	07/14/2014		

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12.6 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	

12.7 Measurement Result

Refer to attach tabular data sheets.

NOTE:

The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 100kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.

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Radiated Spurious Emission Measurement Result 802.11a, 5150~5250 MHz

For measurement plot of radiation revealing the compliance of 15.209, please refer to Appendix I.

Operation Band	:802.11 a	Test Date	:2014-03-19
Fundamental Frequency	:5180 MHz	Temp./Humi.	:22.1 deg_C / 68 RH
Operation Mode	:TX LOW	Engineer	:Allen
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Actual FS($dB\mu V/m$) = SPA. Reading level($dB\mu V$) + Factor(dB)

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
44.55	S	Peak	27.09	-13.11	13.98	40.00	-26.02
275.41	S	Peak	26.80	-11.72	15.08	46.00	-30.92
418.00	S	Peak	27.44	-8.92	18.52	46.00	-27.48
559.62	S	Peak	28.45	-6.72	21.73	46.00	-24.27
677.96	S	Peak	28.53	-3.73	24.80	46.00	-21.20
956.35	S	Peak	28.15	0.20	28.35	46.00	-17.65
10360.00	Н	Peak	26.19	15.55	41.74	68.30	-26.56
15540.00	Н						
20720.00	Н						
25900.00	Н						
31080.00	Н						
36260.00	Н						

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Operation Band	:802.11 a	Test Date	:2014-03-19
Fundamental Frequency	:5180 MHz	Temp./Humi.	:22.1 deg_C / 68 RH
Operation Mode	:TX LOW	Engineer	:Allen
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Actual FS($dB\mu V/m$) = SPA. Reading level($dB\mu V$) + Factor(dB)

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
41.64	S	Peak	27.57	-13.32	14.25	40.00	-25.75
278.32	S	Peak	26.71	-11.60	15.11	46.00	-30.89
420.91	S	Peak	27.91	-8.93	18.98	46.00	-27.02
511.12	S	Peak	29.41	-7.44	21.97	46.00	-24.03
680.87	S	Peak	28.80	-3.66	25.14	46.00	-20.86
916.58	S	Peak	27.58	-0.36	27.22	46.00	-18.78
10360.00	Н	Peak	26.70	15.55	42.25	68.30	-26.05
15540.00	Н						
20720.00	Н						
25900.00	Н						
31080.00	Н						
36260.00	Н						

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Operation Band	:802.11 a	Test Date	:2014-03-19
Fundamental Frequency	:5220 MHz	Temp./Humi.	:22.1 deg_C / 68 RH
Operation Mode	:TX MID	Engineer	:Allen
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Actual FS($dB\mu V/m$) = SPA. Reading level($dB\mu V$) + Factor(dB)

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
99.84	S	Peak	32.23	-17.86	14.37	43.50	-29.13
271.53	S	Peak	27.57	-11.89	15.68	46.00	-30.32
399.57	S	Peak	28.03	-9.18	18.85	46.00	-27.15
559.62	S	Peak	27.82	-6.72	21.10	46.00	-24.90
678.93	S	Peak	27.80	-3.70	24.10	46.00	-21.90
950.53	S	Peak	28.27	0.17	28.44	46.00	-17.56
10440.00	Н	Peak	25.84	15.28	41.12	68.30	-27.18
15660.00	Н						
20880.00	Н						
26100.00	Н						
31320.00	Н						
36540.00	Н						

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Operation Band	:802.11 a	Test Date	:2014-03-19
Fundamental Frequency	:5220 MHz	Temp./Humi.	:22.1 deg_C / 68 RH
Operation Mode	:TX MID	Engineer	:Allen
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Actual FS($dB\mu V/m$) = SPA. Reading level($dB\mu V$) + Factor(dB)

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

36540.00

Η

Mode Reading Level FS @3m MHz F/H/E/S PK/QP/AV dBµV dB dBµV/m dBµV/m dB 42.61 S Peak 27.35 -13.25 14.10 40.00 -25.90 266.68 S Peak 26.79 -12.14 14.65 46.00 -31.35 432.55 S Peak 29.06 -8.96 20.10 46.00 -25.90	n	Margin	Limit	Actual	Factor	Spectrum	Detector	Note	Freq.
42.61 S Peak 27.35 -13.25 14.10 40.00 -25.90 266.68 S Peak 26.79 -12.14 14.65 46.00 -31.35			@3m	FS		Reading Level	Mode		
266.68 S Peak 26.79 -12.14 14.65 46.00 -31.35		dB	dBµV/m	dBµV/m	dB	dBµV	PK/QP/AV	F/H/E/S	MHz
266.68 S Peak 26.79 -12.14 14.65 46.00 -31.35									
)	-25.90	40.00	14.10	-13.25	27.35	Peak	S	42.61
432.55 S Peak 29.06 -8.96 20.10 46.00 -25.90	;	-31.35	46.00	14.65	-12.14	26.79	Peak	S	266.68
)	-25.90	46.00	20.10	-8.96	29.06	Peak	S	432.55
517.91 S Peak 28.94 -7.43 21.51 46.00 -24.49)	-24.49	46.00	21.51	-7.43	28.94	Peak	S	517.91
681.84 S Peak 28.34 -3.66 24.68 46.00 -21.32	2	-21.32	46.00	24.68	-3.66	28.34	Peak	S	681.84
972.84 S Peak 27.61 0.13 27.74 54.00 -26.26	5	-26.26	54.00	27.74	0.13	27.61	Peak	S	972.84
10440.00 H Peak 26.48 15.28 41.76 68.30 -26.54	ł	-26.54	68.30	41.76	15.28	26.48	Peak	Н	10440.00
15660.00 Н								Н	15660.00
20880.00 Н								Н	20880.00
26100.00 Н								Н	26100.00
31320.00 Н								Н	31320.00

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Operation Band	:802.11 a	Test Date	:2014-03-19
Fundamental Frequency	:5240 MHz	Temp./Humi.	:22.1 deg_C / 68 RH
Operation Mode	:TX HIGH	Engineer	:Allen
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Actual FS($dB\mu V/m$) = SPA. Reading level($dB\mu V$) + Factor(dB)

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

36680.00

Η

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
99.84	S	Peak	33.23	-17.86	15.37	43.50	-28.13
280.26	S	Peak	26.65	-11.52	15.13	46.00	-30.87
418.97	S	Peak	28.27	-8.93	19.34	46.00	-26.66
559.62	S	Peak	27.64	-6.72	20.92	46.00	-25.08
677.96	S	Peak	27.81	-3.73	24.08	46.00	-21.92
989.33	S	Peak	27.43	0.09	27.52	54.00	-26.48
10480.00	Н	Peak	26.34	15.69	42.03	68.30	-26.27
15720.00	Н						
20960.00	Н						
26200.00	Н						
31440.00	Н						

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Operation Band	:802.11 a	Test Date	:2014-03-19
Fundamental Frequency	:5240 MHz	Temp./Humi.	:22.1 deg_C / 68 RH
Operation Mode	:TX HIGH	Engineer	:Allen
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Actual FS($dB\mu V/m$) = SPA. Reading level($dB\mu V$) + Factor(dB)

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
51.34	S	Peak	27.77	-13.03	14.74	40.00	-25.26
152.22	S	Peak	27.29	-12.76	14.53	43.50	-28.97
425.76	S	Peak	28.51	-8.97	19.54	46.00	-26.46
556.71	S	Peak	28.39	-6.91	21.48	46.00	-24.52
682.81	S	Peak	27.98	-3.67	24.31	46.00	-21.69
943.74	S	Peak	28.36	0.10	28.46	46.00	-17.54
10480.00	Н	Peak	26.06	15.69	41.75	68.30	-26.55
15720.00	Н						
20960.00	Н						
26200.00	Н						
31440.00	Н						
36680.00	Н						

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Band edge falling to restricted band

For measurement plot of radiation revealing the compliance of 15.209, please refer to Appendix I								
Operation Band	:802.11 a	Test Date	:2014-03-18					
Fundamental Frequency	:5180 MHz	Temp./Humi.	:20.1 deg_C /52 RH					
Operation Mode	:Band Edge LOW	Engineer	:Curry					
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL					

Actual FS($dB\mu V/m$) = SPA. Reading level($dB\mu V$) + Factor(dB)

Factor(dB) = Antenna Factor($dB\mu V/m$) + Cable Loss(dB) – Pre_Amplifier Gain(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we've employed is peak detector.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5150.00	Е	Average	32.55	7.54	40.09	54.00	-13.91
5150.00	E	Peak	51.22	7.54	58.76	74.00	-15.24

Operation Band	:802.11 a	Test Date	:2014-03-18
Fundamental Frequency	:5180 MHz	Temp./Humi.	:20.1 deg_C /52 RH
Operation Mode	:Band Edge LOW	Engineer	:Curry
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Actual FS($dB\mu V/m$) = SPA. Reading level($dB\mu V$) + Factor(dB)

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we've employed is peak detector.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5150.00	E	Average	37.15	7.54	44.69	54.00	-9.31
5150.00	E	Peak	54.55	7.54	62.09	74.00	-11.91

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