



EN 302 502 Test Report

Product Name : WIRELESS-ABGN 3X3 NETWORK MINI
PCIE ADAPTER

Model No. : WLE350NX

Applicant : Compex Systems Pte Ltd

Address : 135 Joo Seng Road, #08-01 PM Industrial Building
Singapore 368363

Date of Receipt : 04/02/2013

Test Date : 05/02/2013~08/04/2013

Issued Date : 08/04/2013

Report No. : 132S008R-RF-CE-P14V03

Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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Test Report Certification

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Applicant : Compex Systems Pte Ltd

Address : 135 Joo Seng Road, #08-01 PM Industrial Building
Singapore 368363

Manufacturer : Compex Systems Pte Ltd

Address : 135 Joo Seng Road, #08-01 PM Industrial Building
Singapore 368363

Model No. : WLE350NX

EUT Voltage : DC: 3.3V

Trade Name : COMPEX

Applicable Standard : ETSI EN 302 502 V1.2.1 (2008-07)
Exclude DFS requirement.

Test Result : Complied

Performed Location : SuZhou EMC laboratory
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Laboratory Information

We, **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	:	BSMI, NCC, TAF
Germany	:	TUV Rheinland
Norway	:	Nemko, DNV
USA	:	FCC, NVLAP
Japan	:	VCCI
China	:	CNAS

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site :<http://www.quietek.com/tw/ctg/cts/accreditations.htm>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site :
<http://www.quietek.com/>

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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1. General Information

1.1. EUT Description

Product Name	WIRELESS-ABGN 3X3 NETWORK MINI PCIE ADAPTER
Trade Name	COMPEX
Model No.	WLE350NX
Working Voltage	DC 3.3V
Frequency Range	802.11a/n(20MHz): 5745-5825MHz
Channel Number	802.11a/n(20MHz): 5
Type of Modulation	OFDM
Data Rate	802.11a: 6/9/12/18/24/36/48/54 Mbps 802.11n: up to 150 Mbps
Channel Control	Auto
Antenna Delivery	3*Tx + 3*Rx
Antenna Type	Reference to Antenna List
Antenna Gain	Reference to Antenna List

For 5.8GHz Band

802.11a/n(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745 MHz	153	5765 MHz	157	5785 MHz	161	5805 MHz
165	5825MHz	N/A	N/A	N/A	N/A	N/A	N/A

802.11a/b/g/n Antenna List

Antenna	Manufacturer	Peak Gain
Panel Antenna	A*STAR Institute for Infocomm Research	3dBi for 2.4GHz, 5dBi for 5GHz
Dipole Antenna 1#	SmartAnt Telecom Co., Ltd.	4.5dBi for 2.4GHz, 7dBi for 5GHz
Dipole Antenna 2#	Kunshan Wavelink Electronic Co., Ltd.	2dBi for 2.4GHz and 5GHz

Power Parameter Value of the test software

Test Mode	Test Channel	Ant0	Ant1	Ant2	Ant0+1	Ant0+1+2
802.11a	5745	22.0	22.0	22.0	×	×
	5825	22.0	22.0	22.0	×	×
802.11n(20MHz)	5745	22.0	22.0	22.0	31.5	31.5
	5825	22.0	22.0	22.0	31.5	31.5

The test mode of the test software can support.

Test Mode	Ant0	Ant1	Ant2	Ant0+1	Ant0+1+2
802.11a	√	√	√	×	×
802.11n(20MHz)	√	√	√	√	√

1.2. Mode of Operation

Quietek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

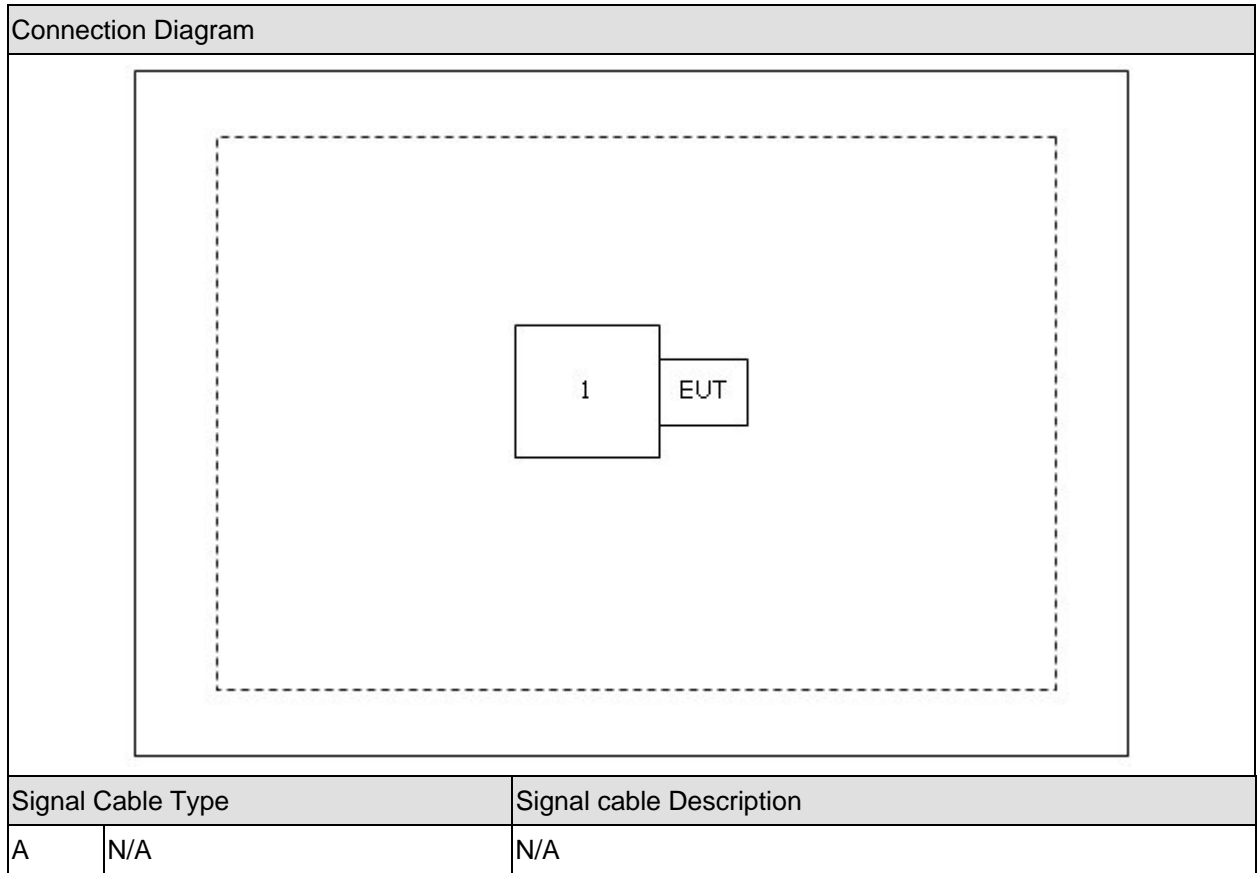
Test Mode
Mode 1: Transmit by 802.11a
Mode 2: Transmit by 802.11n (20MHz)
Mode 3: Receive by 802.11n (20MHz)

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	DELL	E520	N/A	Non-Shielded, 1.8m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Run the RF test software "Art2", and set the test mode and channel, then press OK to start continue Transmit or receive.

2. Technical Test

2.1. Summary of Test Result

- No deviations from the test standards
 Deviations from the test standards as below description:

Performed Test Item	Normative References	Test Performed	Deviation
Frequency Error	ETSI EN 302 502 V1.2.1 (2008-07)	Yes	No
Transmitter RF Output Power, EIRP, TPC and EIRP Spectral Density	ETSI EN 302 502 V1.2.1 (2008-07)	Yes	No
Transmitter Unwanted Emissions Outside the 5725 MHz to 5875 MHz Band	ETSI EN 302 502 V1.2.1 (2008-07)	Yes	No
Transmitter Unwanted Emissions Within the 5725 MHz to 5875 MHz Band	ETSI EN 302 502 V1.2.1 (2008-07)	Yes	No
Receiver Spurious Emissions	ETSI EN 302 502 V1.2.1 (2008-07)	Yes	No
Dynamic Frequency Selection (DFS)	ETSI EN 302 502 V1.2.1 (2008-07)	No	No

2.2. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-7}$
RF Power Conducted	$\pm 0.7\text{dB}$
RF Power Radiated	$\pm 5.2\text{dB}$
Spurious Emissions, Conducted	$\pm 2.8\text{dB}$
Spurious Emissions, Radiated	$\pm 5.2\text{dB}$
Temperature	$\pm 0.5^\circ\text{C}$
Humidity	$\pm 1\%$
Time	$\pm 8\%$

2.3. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	24
Humidity (%RH)	25-75	48
Barometric pressure (mbar)	860-1060	950-1000

3. Frequency Error

3.1. Test Equipment

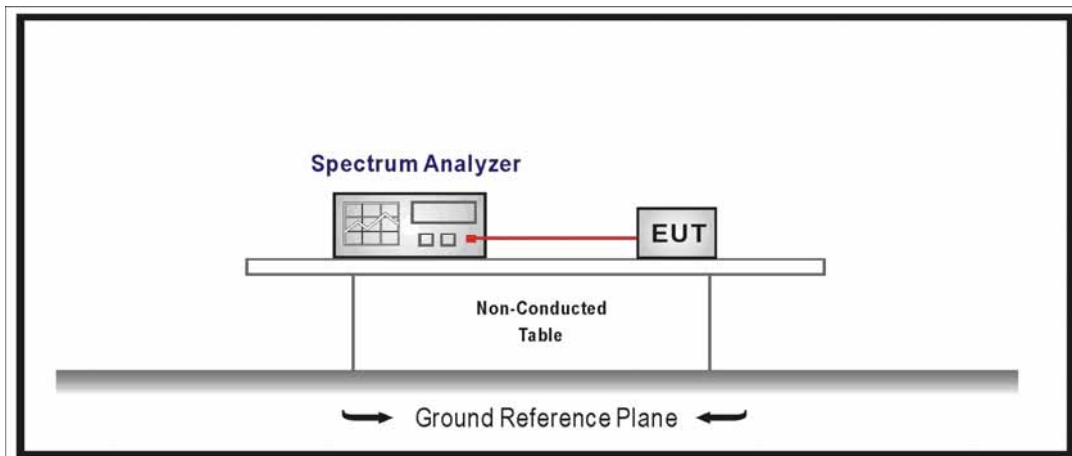
Frequency Error / TR8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
Temperature/Humidity Meter	zhicheng	ZC1-2	AC6-TH	2014.01.11

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

3.2. Test Setup

For Conducted Measurement



3.3. Limit

The manufacturer shall declare the centre frequencies on which the equipment can operate. The equipment shall only operate in channels centred on any of those frequencies identified in clause 4.1.1 of standard.

The actual carrier centre frequency shall be maintained within the range $f_c \pm 20$ ppm of the nominal channel centre frequency.

3.4. Test Procedure

Refer to ETSI EN 302 502 V1.2.1 (2008-07) Clause 5.3.2

3.5. Test Result

Product	:	WLE350NX
Test Item	:	Frequency Error
Test Site	:	TR8
Test Mode	:	Mode: Carrier Wave

Test Frequency (MHz)	Measurement Frequency (MHz)	ΔF (ppm)	Limit (ppm)
5745.000000	5745.037645	-6.55	± 20
5825.000000	5825.013247	-2.27	± 20

4. Transmitter RF Output Power, EIRP, TPC and EIRP Spectral Density

4.1. Test Equipment

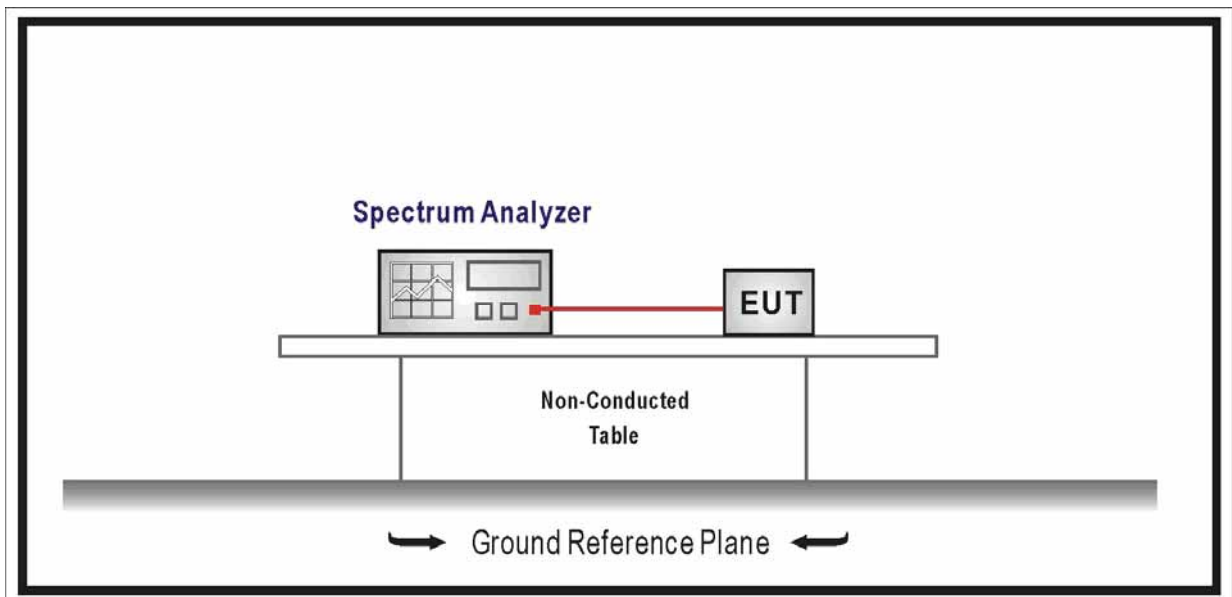
Transmitter RF Output Power, EIRP, TPC and EIRP Spectral Density / TR8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2013.05.07

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

4.2. Test Setup

For Conducted Measurement



4.3. Limit

The mean EIRP, RF power and EIRP spectral density when configured to operate at the highest stated power level (P_{cond_1}) shall not exceed the limit in following table.

Mean RF output power, EIRP and power density limits at the highest power level			
Channel Width ChS	Mean RF power into antenna (dBm)	Mean EIRP (dBm)	Mean EIRP spectral density (dBm/MHz)
10 MHz	27	33	23
20 MHz	30	36	23

The FWA device shall have the capability to reduce the operating mean EIRP level to level not exceeding 24 dBm for ChS = 20 MHz and 21 dBm for ChS = 10 MHz.

Note: The mean EIRP and the mean EIRP spectral density limits apply to a device and not to each radio of a device.

4.4. Test Procedure

Refer to ETSI EN 302 502 V1.2.1 (2008-07) Clause 5.3.3

4.5. Test Result

Product	:	WLE350NX
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 0)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measured Power (dBm)	RF Power (dBm)	RF Power into Antenna (dBm)	EIRP (dBm)	Limit (dBm)
5745	22.35	22.39	30	29.39	36
5825	21.17	21.21	30	28.21	36

RF Power = Measured Power + 10 log (1/Duty Cycle)

EIRP = RF Power + Antenna Gain

Product	:	WLE350NX
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 1)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measured Power (dBm)	RF Power (dBm)	RF Power into Antenna (dBm)	EIRP (dBm)	Limit (dBm)
5745	19.53	19.57	30	26.57	36
5825	19.31	19.35	30	26.35	36

RF Power = Measured Power + 10 log (1/Duty Cycle)

EIRP = RF Power + Antenna Gain

Product	:	WLE350NX
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 2)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measured Power (dBm)	RF Power (dBm)	RF Power into Antenna (dBm)	EIRP (dBm)	Limit (dBm)
5745	20.82	20.86	30	27.86	36
5825	21.17	21.21	30	28.21	36

RF Power = Measured Power + 10 log (1/Duty Cycle)

EIRP = RF Power + Antenna Gain

Product	:	WLE350NX
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 0)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measured Power (dBm)	RF Power (dBm)	RF Power into Antenna (dBm)	EIRP (dBm)	Limit (dBm)
5745	21.69	21.73	30	28.73	36
5825	21.07	21.11	30	28.11	36

RF Power = Measured Power + 10 log (1/Duty Cycle)

EIRP = RF Power + Antenna Gain

Product	:	WLE350NX
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 1)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measured Power (dBm)	RF Power (dBm)	RF Power into Antenna (dBm)	EIRP (dBm)	Limit (dBm)
5745	19.77	19.81	30	26.81	36
5825	19.43	19.47	30	26.47	36

RF Power = Measured Power + 10 log (1/Duty Cycle)

EIRP = RF Power + Antenna Gain

Product	:	WLE350NX
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 2)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measured Power (dBm)	RF Power (dBm)	RF Power into Antenna (dBm)	EIRP (dBm)	Limit (dBm)
5745	20.68	20.72	30	27.72	36
5825	21.06	21.10	30	28.10	36

RF Power = Measured Power + 10 log (1/Duty Cycle)

EIRP = RF Power + Antenna Gain

Product	:	WLE350NX
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 0+1)

Antenna Gain = 7dBi, Duty Cycle = 99%							
Frequency (MHz)	Measured Power (dBm)		RF Power (dBm)		RF Power into Antenna (dBm)	EIRP (dBm)	Limit (dBm)
	Chain 0	Chain 1	Chain 0	Chain 1			
5745	20.97	20.27	21.01	20.31	30	30.68	36
5825	19.28	19.93	19.32	19.97	30	29.67	36

RF Power = Measured Power + 10 log (1/Duty Cycle)

EIRP = RF Power + Antenna Gain

Product	:	WLE350NX
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 0+1+2)

Antenna Gain = 7dBi, Duty Cycle = 99%									
Frequency (MHz)	Measured Power (dBm)			RF Power (dBm)			RF Power into Antenna (dBm)	EIRP (dBm)	Limit (dBm)
	Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2			
5745	17.65	17.75	19.32	17.69	17.79	19.36	30	30.12	36
5825	18.28	17.54	17.82	18.32	17.58	17.86	30	29.70	36

RF Power = Measured Power + 10 log (1/Duty Cycle)

EIRP = RF Power + Antenna Gain

Product	:	WLE350NX
Test Item	:	EIRP of TPC
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11a(Chain 0)

Antenna Gain = 7dBi, Duty Cycle = 99%			
Frequency (MHz)	Measured Power (dBm)	EIRP of TPC (dBm)	Limit (dBm)
5745	0.12	7.16	24
5825	0.57	7.61	24

EIRP of TPC = Measured Power + Antenna Gain + 10 log (1/Duty Cycle)

Product	:	WLE350NX
Test Item	:	EIRP of TPC
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11a(Chain 1)

Antenna Gain = 7dBi, Duty Cycle = 99%			
Frequency (MHz)	Measured Power (dBm)	EIRP of TPC (dBm)	Limit (dBm)
5745	-1.38	5.66	24
5825	-1.35	5.69	24

EIRP of TPC = Measured Power + Antenna Gain + 10 log (1/Duty Cycle)

Product	:	WLE350NX
Test Item	:	EIRP of TPC
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11a(Chain 2)

Antenna Gain = 7dBi, Duty Cycle = 99%			
Frequency (MHz)	Measured Power (dBm)	EIRP of TPC (dBm)	Limit (dBm)
5745	-1.53	5.51	24
5825	0.24	7.28	24

EIRP of TPC = Measured Power + Antenna Gain + 10 log (1/Duty Cycle)

Product	:	WLE350NX
Test Item	:	EIRP of TPC
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)(Chain 0)

Antenna Gain = 7dBi, Duty Cycle = 99%			
Frequency (MHz)	Measured Power (dBm)	EIRP of TPC (dBm)	Limit (dBm)
5745	-0.09	6.95	24
5825	-0.16	6.88	24

EIRP of TPC = Measured Power + Antenna Gain + 10 log (1/Duty Cycle)

Product	:	WLE350NX
Test Item	:	EIRP of TPC
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)(Chain 1)

Antenna Gain = 7dBi, Duty Cycle = 99%			
Frequency (MHz)	Measured Power (dBm)	EIRP of TPC (dBm)	Limit (dBm)
5745	-1.42	5.62	24
5825	-1.23	5.81	24

EIRP of TPC = Measured Power + Antenna Gain + 10 log (1/Duty Cycle)

Product	:	WLE350NX
Test Item	:	EIRP of TPC
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)(Chain 2)

Antenna Gain = 7dBi, Duty Cycle = 99%			
Frequency (MHz)	Measured Power (dBm)	EIRP of TPC (dBm)	Limit (dBm)
5745	-1.28	5.76	24
5825	0.14	7.18	24

EIRP of TPC = Measured Power + Antenna Gain + 10 log (1/Duty Cycle)

Product	:	WLE350NX
Test Item	:	EIRP of TPC
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)(Chain 0+1)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measured Power (Chain 100) (dBm)	Measured Power (Chain 010) (dBm)	Measured Power (Total) (dBm)	EIRP of TPC (dBm)	Limit (dBm)
5745	-4.01	-4.63	-1.26	5.74	24
5825	-2.87	-3.72	-0.22	6.78	24

EIRP of TPC = Measured Power + Antenna Gain + 10 log (1/Duty Cycle)

Product	:	WLE350NX
Test Item	:	EIRP of TPC
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)(Chain 0+1+2)

Antenna Gain = 7dBi, Duty Cycle = 99%						
Frequency (MHz)	Measured Power (Chain 0) (dBm)	Measured Power (Chain 1) (dBm)	Measured Power (Chain 2) (dBm)	Measured Power (Total) (dBm)	EIRP of TPC (dBm)	Limit (dBm)
5745	0.49	-2.64	-1.56	3.77	10.77	24
5825	1.15	-1.38	0.21	4.93	11.93	24

EIRP of TPC = Measured Power + Antenna Gain + 10 log (1/Duty Cycle)

Product	:	WLE350NX
Test Item	:	Maximum Spectral Power Density
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11a(Chain 0)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measurement Density (dBm/MHz)			Total Power Density (dBm/MHz)	Limit (dBm/MHz)
	Chain 0	Chain 1	Chain 2		
5745	9.03	N/A	N/A	16.07	23.00
5825	8.08	N/A	N/A	15.12	23.00

Product	:	WLE350NX
Test Item	:	Maximum Spectral Power Density
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11a(Chain 1)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measurement Density (dBm/MHz)			Total Power Density (dBm/MHz)	Limit (dBm/MHz)
	Chain 0	Chain 1	Chain 2		
5745	N/A	10.01	N/A	17.05	23.00
5825	N/A	9.41	N/A	16.45	23.00

Product	:	WLE350NX
Test Item	:	Maximum Spectral Power Density
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11a(Chain 2)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measurement Density (dBm/MHz)			Total Power Density (dBm/MHz)	Limit (dBm/MHz)
	Chain 0	Chain 1	Chain 2		
5745	N/A	N/A	8.61	15.65	23.00
5825	N/A	N/A	8.77	15.81	23.00

Product	:	WLE350NX
Test Item	:	Maximum Spectral Power Density
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)(Chain 0)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measurement Density (dBm/MHz)			Total Power Density (dBm/MHz)	Limit (dBm/MHz)
	Chain 0	Chain 1	Chain 2		
5745	8.84	N/A	N/A	15.88	23.00
5825	7.97	N/A	N/A	15.01	23.00

Product	:	WLE350NX
Test Item	:	Maximum Spectral Power Density
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)(Chain 1)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measurement Density (dBm/MHz)			Total Power Density (dBm/MHz)	Limit (dBm/MHz)
	Chain 0	Chain 1	Chain 2		
5745	N/A	9.89	N/A	16.93	23.00
5825	N/A	8.72	N/A	15.76	23.00

Product	:	WLE350NX
Test Item	:	Maximum Spectral Power Density
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)(Chain 2)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measurement Density (dBm/MHz)			Total Power Density (dBm/MHz)	Limit (dBm/MHz)
	Chain 0	Chain 1	Chain 2		
5745	N/A	N/A	8.28	15.32	23.00
5825	N/A	N/A	8.69	15.73	23.00

Product	:	WLE350NX
Test Item	:	Maximum Spectral Power Density
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)(Chain 0+1)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measurement Density (dBm/MHz)			Total Power Density (dBm/MHz)	Limit (dBm/MHz)
	Chain 0	Chain 1	Chain 2		
5745	6.48	7.19	N/A	16.90	23.00
5825	8.04	6.34	N/A	17.32	23.00

Product	:	WLE350NX
Test Item	:	Maximum Spectral Power Density
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)(Chain 0+1+2)

Antenna Gain = 7dBi, Duty Cycle = 99%					
Frequency (MHz)	Measurement Density (dBm/MHz)			Total Power Density (dBm/MHz)	Limit (dBm/MHz)
	Chain 0	Chain 1	Chain 2		
5745	5.86	5.43	4.06	16.99	23.00
5825	4.57	5.07	6.54	17.29	23.00

5. Transmitter Unwanted Emissions Outside the 5725 MHz to 5875 MHz Band

5.1. Test Equipment

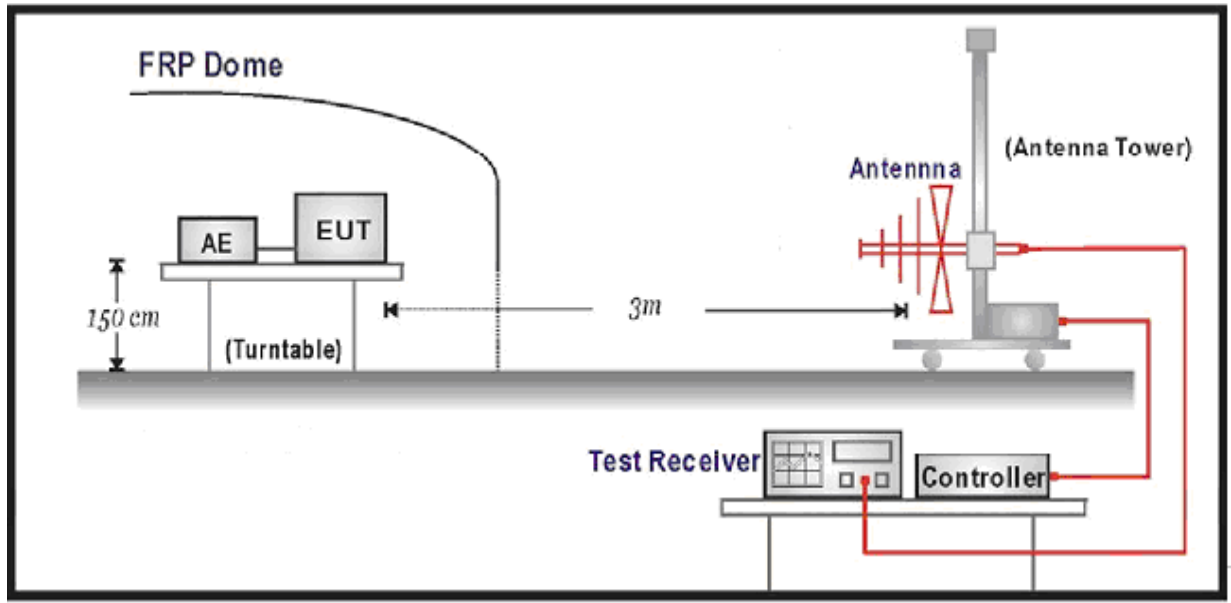
Transmitter Unwanted Emissions Outside the 5725 MHz to 5875 MHz Band / TR8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
PSG Analog S.G.	Agilent	E8257D	MY44321116	2014.03.30
Preamplifier	QuieTek	AP-025C	CHM-0503006	2014.04.11
Preamplifier	QuieTek	AP-180C	CHM-0602013	2014.04.11
Bilog Type Antenna	Schaffner	CBL6141A	4278	NA
Half Wave Tuned Dipole Antenna	COM-POWER	AD-100	40137	2013.11.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	737	2013.11.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	499	2014.06.08
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2013.11.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	295	2013.11.24
High-Pass Filter	Wainwright	WHKX7.0/18G-8SS	SN16	2014.03.01
Low-Pass Filter	Wainwright	WLKS4500-9SS	SN2	2014.03.01
Temperature/Humidity Meter	zhicheng	ZC1-2	AC6-TH	2014.01.11

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

5.2. Test Setup

For Radiated Measurement



5.3. Limit

Frequency Range (MHz)	Limit (dBm)	Bandwidth (kHz) (see note)
30 to 1000	-36	100
1000 to 5725	-30	1000
5875 to 26500	-30	1000

Note: At frequencies just below 5725 MHz or just above 5875 MHz, account shall be taken of the spacing between the emission centre frequency and the measurement centre frequency to evaluate the appropriate reference bandwidth given in annex 2 of CEPT/ERC Recommendation 74-01 [10].

5.4. Test Procedure

Refer to ETSI EN 302 502 V1.2.1 (2008-07) Clause 5.3.4.1

5.5. Test Result

Test by panel antenna

Mode 1: 802.11a(Chain 0)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
599.9	H	-69.7	-36	-33.7	PK
599.9	V	-69.8	-36	-33.8	PK
666.8	H	-70.7	-36	-34.7	PK
666.8	V	-69.7	-36	-33.7	PK
11490.0	H	-45.8	-30	-15.8	PK
11490.0	V	-45.0	-30	-15.0	PK
Channel 165 (5825MHz)					
599.9	H	-71.3	-36	-35.3	PK
599.9	V	-73.2	-36	-37.2	PK
699.8	H	-73.8	-36	-37.8	PK
699.8	V	-68	-36	-32.0	PK
11650.0	H	-40.7	-30	-10.7	PK
11650.0	V	-39.5	-30	-9.5	PK

Mode 1: 802.11a(Chain 1)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
666.8	H	-68.2	-36	-32.2	PK
666.8	V	-66.4	-36	-30.4	PK
733.2	H	-68	-36	-32.0	PK
733.2	V	-74.4	-36	-38.4	PK
11490.0	H	-46.0	-30	-16.0	PK
11490.0	V	-44.4	-30	-14.4	PK
Channel 165 (5825MHz)					
599.9	H	-66.2	-36	-30.2	PK
599.9	V	-68.3	-36	-32.3	PK
699.8	H	-61.3	-36	-25.3	PK
699.8	V	-68.4	-36	-32.4	PK
11650.0	H	-39.6	-30	-9.6	PK
11650.0	V	-39.2	-30	-9.2	PK

Mode 1: 802.11a(Chain 2)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
666.8	H	-71.7	-36	-35.7	PK
666.8	V	-65.5	-36	-29.5	PK
733.2	H	-68.7	-36	-32.7	PK
733.2	V	-73.2	-36	-37.2	PK
11490.0	H	-46.0	-30	-16.0	PK
11490.0	V	-44.1	-30	-14.1	PK
Channel 165 (5825MHz)					
599.9	H	-67.3	-36	-31.3	PK
599.9	V	-63.8	-36	-27.8	PK
699.8	H	-66.9	-36	-30.9	PK
699.8	V	-71.4	-36	-35.4	PK
11650.0	H	-39.9	-30	-9.9	PK
11650.0	V	-39.9	-30	-9.9	PK

Mode 2: 802.11n(20MHz) (Chain 0)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
599.8	H	-63.1	-36	-27.1	PK
599.8	V	-67.5	-36	-31.5	PK
733.2	H	-62	-36	-26.0	PK
733.2	V	-70.2	-36	-34.2	PK
11490.0	H	-45.3	-30	-15.3	PK
11490.0	V	-44.8	-30	-14.8	PK
Channel 165 (5825MHz)					
666.8	H	-65.2	-36	-29.2	PK
666.8	V	-71.3	-36	-35.3	PK
699.8	H	-75	-36	-39.0	PK
699.8	V	-67.9	-36	-31.9	PK
11650.0	H	-37.6	-30	-7.6	PK
11650.0	V	-39.5	-30	-9.5	PK

Mode 2: 802.11n(20MHz) (Chain 1)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
666.8	H	-73.7	-36	-37.7	PK
666.8	V	-69.3	-36	-33.3	PK
733.2	H	-64.7	-36	-28.7	PK
733.2	V	-72.5	-36	-36.5	PK
11490.0	H	-45.4	-30	-15.4	PK
11490.0	V	-45.0	-30	-15.0	PK
Channel 165 (5825MHz)					
699.8	H	-67.6	-36	-31.6	PK
699.8	V	-68.5	-36	-32.5	PK
733.2	H	-74.1	-36	-38.1	PK
733.2	V	-65.5	-36	-29.5	PK
11650.0	H	-40.3	-30	-10.3	PK
11650.0	V	-39.4	-30	-9.4	PK

Mode 2: 802.11n(20MHz) (Chain 2)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
666.8	H	-69.2	-36	-33.2	PK
666.8	V	-64.6	-36	-28.6	PK
733.2	H	-68.5	-36	-32.5	PK
733.2	V	-70.4	-36	-34.4	PK
11490.0	H	-43.9	-30	-13.9	PK
11490.0	V	-45.1	-30	-15.1	PK
Channel 165 (5825MHz)					
699.8	H	-69.3	-36	-33.3	PK
699.8	V	-65.7	-36	-29.7	PK
733.2	H	-69.3	-36	-33.3	PK
733.2	V	-72.1	-36	-36.1	PK
11650.0	H	-39.8	-30	-9.8	PK
11650.0	V	-39.6	-30	-9.6	PK

Mode 2: 802.11n(20MHz) (Chain 0+1)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
599.8	H	-67.5	-36	-31.5	PK
599.8	V	-63.4	-36	-27.4	PK
699.8	H	-64.3	-36	-28.3	PK
699.8	V	-69.7	-36	-33.7	PK
11490.0	H	-45.3	-30	-15.3	PK
11490.0	V	-44.5	-30	-14.5	PK
Channel 165 (5825MHz)					
599.8	H	-66.8	-36	-30.8	PK
599.8	V	-71.5	-36	-35.5	PK
733.2	H	-72.1	-36	-36.1	PK
733.2	V	-74.4	-36	-38.4	PK
11650.0	H	-39.8	-30	-9.8	PK
11650.0	V	-39.6	-30	-9.6	PK

Mode 2: 802.11n(20MHz) (Chain 0+1+2)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
599.8	H	-67.2	-36	-31.2	PK
599.8	V	-64.7	-36	-28.7	PK
699.8	H	-68.3	-36	-32.3	PK
699.8	V	-68.5	-36	-32.5	PK
11490.0	H	-45.5	-30	-15.5	PK
11490.0	V	-45.1	-30	-15.1	PK
Channel 165 (5825MHz)					
599.8	H	-66.0	-36	-30.0	PK
599.8	V	-72.0	-36	-36.0	PK
733.2	H	-71.1	-36	-35.1	PK
733.2	V	-70.9	-36	-34.9	PK
11650.0	H	-39.9	-30	-9.9	PK
11650.0	V	-39.8	-30	-9.8	PK

Test by dipole antenna 1#

Mode 1: 802.11a(Chain 0)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
252.4	H	-65.7	-36	-29.7	PK
263.5	V	-65.6	-36	-29.6	PK
432.8	H	-65.0	-36	-29.0	PK
366.6	V	-66.9	-36	-30.9	PK
11490.0	H	-47.6	-30	-17.6	PK
11490.0	V	-47.0	-30	-17.0	PK
Channel 165 (5825MHz)					
252.3	H	-66.3	-36	-30.3	PK
299.3	V	-60.1	-36	-24.1	PK
399.9	H	-55.9	-36	-19.9	PK
399.8	V	-58.9	-36	-22.9	PK
11650.0	H	-42.6	-30	-12.6	PK
11650.0	V	-41.1	-30	-11.1	PK

Mode 1: 802.11a(Chain 1)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
335.9	H	-57.1	-36	-21.1	PK
299.3	V	-60.4	-36	-24.4	PK
432.3	H	-66.7	-36	-30.7	PK
399.2	V	-58.7	-36	-22.7	PK
11490.0	H	-47.9	-30	-17.9	PK
11490.0	V	-46.4	-30	-16.4	PK
Channel 165 (5825MHz)					
258.4	H	-64.9	-36	-28.9	PK
263.9	V	-64.7	-36	-28.7	PK
399.0	H	-56.7	-36	-20.7	PK
336.0	V	-58.7	-36	-22.7	PK
11650.0	H	-41.7	-30	-11.7	PK
11650.0	V	-41.3	-30	-11.3	PK

Mode 1: 802.11a(Chain 2)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
258.1	H	-66.1	-36	-30.1	PK
257.7	V	-65.7	-36	-29.7	PK
299.3	H	-58.7	-36	-22.7	PK
299.9	V	-60.7	-36	-24.7	PK
11490.0	H	-48.2	-30	-18.2	PK
11490.0	V	-48.2	-30	-18.2	PK
Channel 165 (5825MHz)					
258.4	H	-64.9	-36	-28.9	PK
263.9	V	-64.7	-36	-28.7	PK
399.0	H	-56.7	-36	-20.7	PK
336.0	V	-58.7	-36	-22.7	PK
11650.0	H	-42.0	-30	-12.0	PK
11650.0	V	-42.1	-30	-12.1	PK

Mode 2: 802.11n(20MHz) (Chain 0)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
258.1	H	-66.0	-36	-30.0	PK
263.5	V	-66.6	-36	-30.6	PK
432.2	H	-67.3	-36	-31.3	PK
432.1	V	-67.6	-36	-31.6	PK
11490.0	H	-48.2	-30	-18.2	PK
11490.0	V	-46.5	-30	-16.5	PK
Channel 165 (5825MHz)					
240.0	H	-67.8	-36	-31.8	PK
263.3	V	-65.5	-36	-29.5	PK
399.0	H	-56.1	-36	-20.1	PK
399.0	V	-56.9	-36	-20.9	PK
11650.0	H	-42.2	-30	-12.2	PK
11650.0	V	-41.5	-30	-11.5	PK

Mode 2: 802.11n(20MHz) (Chain 1)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
258.3	H	-65.5	-36	-29.5	PK
257.8	V	-69.4	-36	-33.4	PK
365.7	H	-68.8	-36	-32.8	PK
433.3	V	-68.8	-36	-32.8	PK
11490.0	H	-48.2	-30	-18.2	PK
11490.0	V	-47.8	-30	-17.8	PK
Channel 165 (5825MHz)					
263.3	H	-67.0	-36	-31.0	PK
263.4	V	-65.7	-36	-29.7	PK
433.3	H	-66.1	-36	-30.1	PK
365.7	V	-69.9	-36	-33.9	PK
11650.0	H	-41.9	-30	-11.9	PK
11650.0	V	-41.4	-30	-11.4	PK

Mode 2: 802.11n(20MHz) (Chain 2)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
299.3	H	-67.4	-36	-31.4	PK
299.3	V	-68.6	-36	-32.6	PK
432.3	H	-67.4	-36	-31.4	PK
431.9	V	-68.2	-36	-32.2	PK
11490.0	H	-47.8	-30	-17.8	PK
11490.0	V	-46.7	-30	-16.7	PK
Channel 165 (5825MHz)					
300.0	H	-67.5	-36	-31.5	PK
338.5	V	-67.5	-36	-31.5	PK
358.0	H	-72.6	-36	-36.6	PK
432.4	V	-67.7	-36	-31.7	PK
11650.0	H	-42.2	-30	-12.2	PK
11650.0	V	-41.3	-30	-11.3	PK

Mode 2: 802.11n(20MHz) (Chain 0+1)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
227.3	H	-72.4	-36	-36.4	PK
252.1	V	-67.2	-36	-31.2	PK
338.5	H	-67.7	-36	-31.7	PK
399.0	V	-69.6	-36	-33.6	PK
11490.0	H	-47.6	-30	-17.6	PK
11490.0	V	-47.3	-30	-17.3	PK
Channel 165 (5825MHz)					
258.1	H	-66.0	-36	-30.0	PK
263.5	V	-66.6	-36	-30.6	PK
432.2	H	-67.3	-36	-31.3	PK
432.1	V	-67.6	-36	-31.6	PK
11650.0	H	-42.1	-30	-12.1	PK
11650.0	V	-42.0	-30	-12.0	PK

Mode 2: 802.11n(20MHz) (Chain 0+1+2)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
335.9	H	-57.1	-36	-21.1	PK
299.3	V	-60.4	-36	-24.4	PK
432.3	H	-66.7	-36	-30.7	PK
399.2	V	-58.7	-36	-22.7	PK
11490.0	H	-47.6	-30	-17.6	PK
11490.0	V	-47.7	-30	-17.7	PK
Channel 165 (5825MHz)					
258.4	H	-64.9	-36	-28.9	PK
263.9	V	-64.7	-36	-28.7	PK
399.0	H	-56.7	-36	-20.7	PK
336.0	V	-58.7	-36	-22.7	PK
11650.0	H	-41.6	-30	-11.6	PK
11650.0	V	-42.0	-30	-12.0	PK

5.6. Test Photograph

Test Mode: Transmit

Description: Transmitter Spurious Emissions Test Setup for Below 1GHz



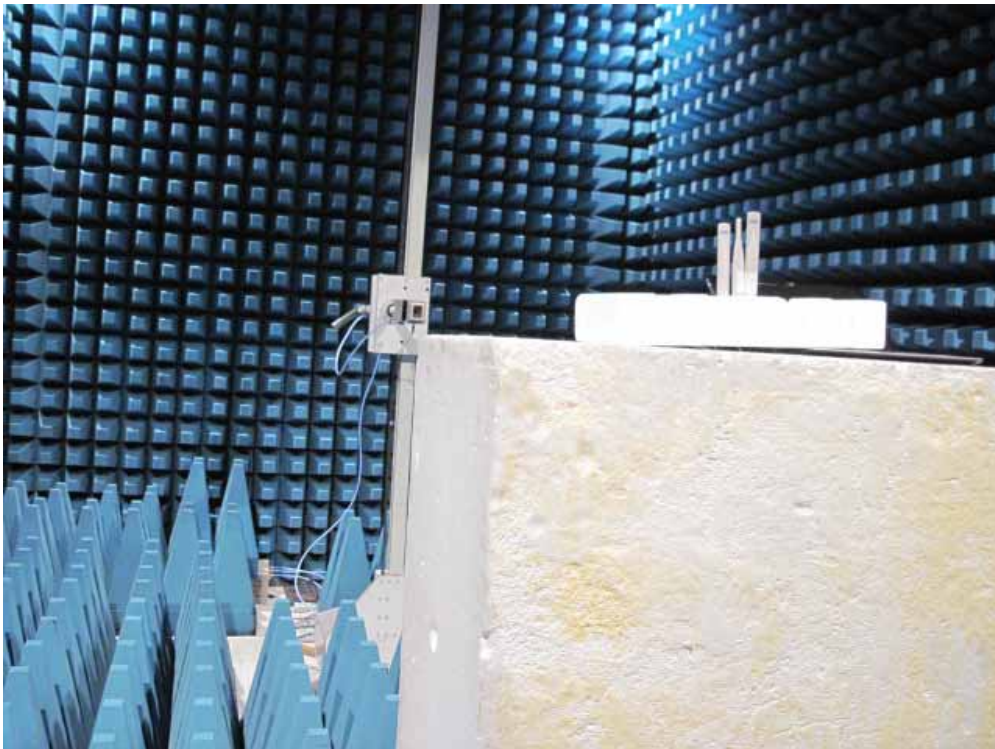
Test Mode: Transmit

Description: Transmitter Spurious Emissions Test Setup for 1~18GHz



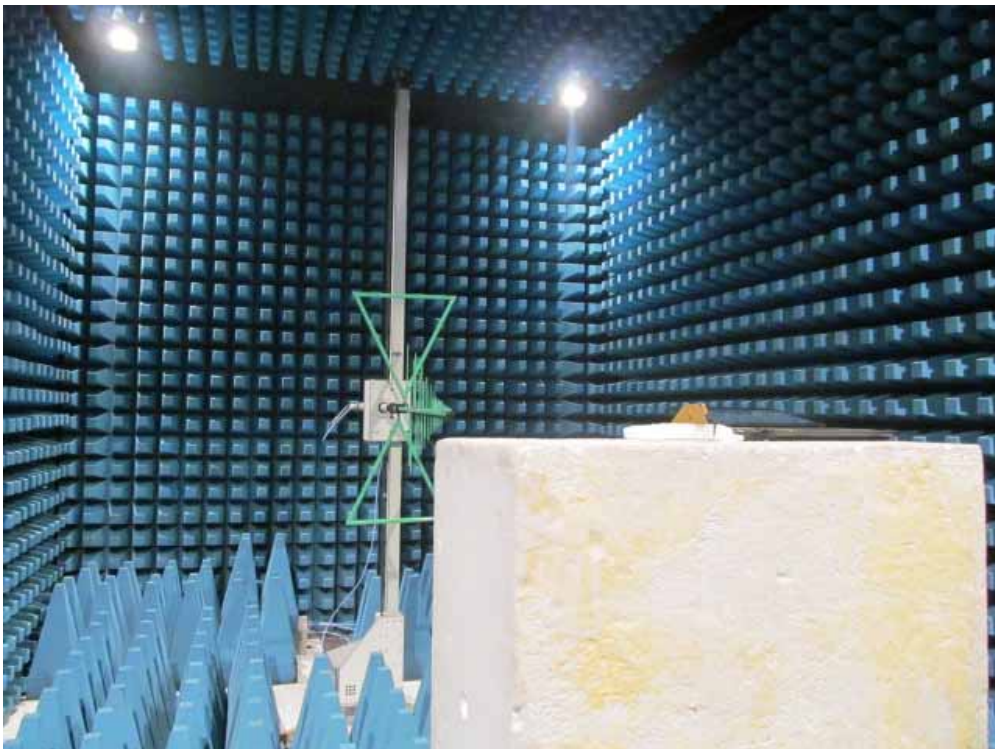
Test Mode: Transmit

Description: Transmitter Spurious Emissions Test Setup for 18~26.5GHz



Test Mode: Transmit

Description: Transmitter Spurious Emissions Test Setup for Below 1GHz



Test Mode: Transmit

Description: Transmitter Spurious Emissions Test Setup for 1~18GHz



Test Mode: Transmit

Description: Transmitter Spurious Emissions Test Setup for 18~26.5GHz



6. Transmitter Unwanted Emissions Within the 5725 MHz to 5875 MHz Band

6.1. Test Equipment

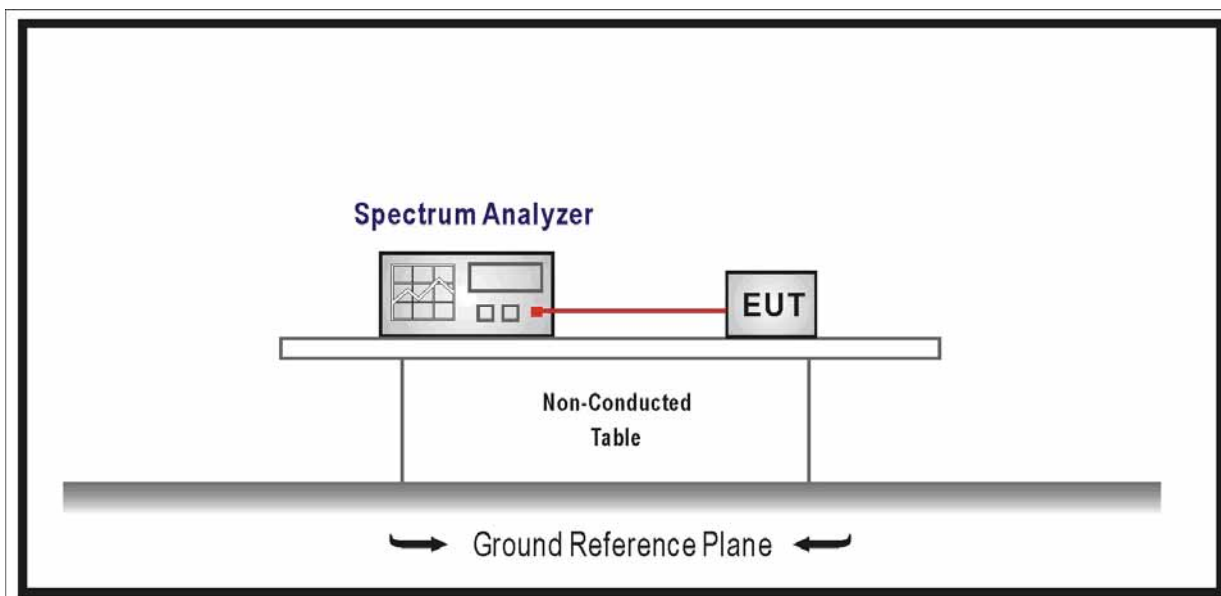
Transmitter Unwanted Emissions Within the 5725 MHz to 5875 MHz Band / TR8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
Temperature/Humidity Meter	zhicheng	ZC1-2	AC6-TH	2014.01.11

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

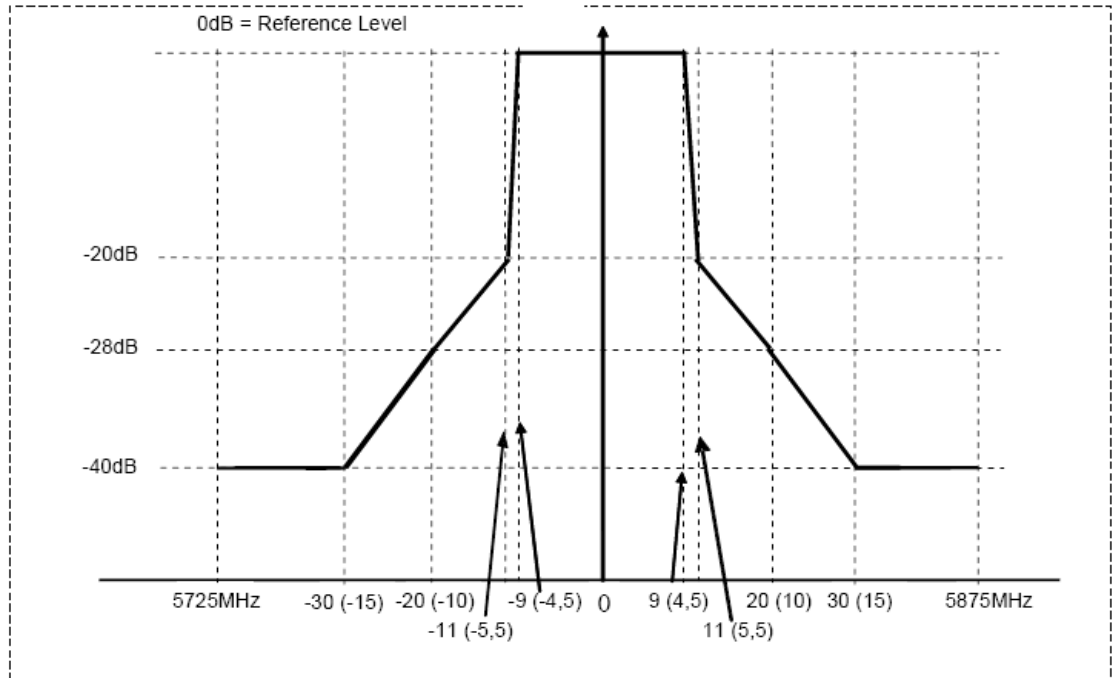
6.2. Test Setup

For Conducted Measurement



6.3. Limit

The average level of the transmitted spectrum based on the declared ChS shall not exceed the limits given in figure 1 when operating under highest output power conditions.



- NOTE 1: 0 dB Reference Level is the spectral density relative to the maximum spectral power density of the transmitted signal.
- NOTE 2: On the Frequency Offset axis, the figures apply to ChS = 20 MHz whereas the figures in parentheses apply to ChS = 10 MHz.
- NOTE 3: Emissions that fall outside the lower and upper band frequency limits of 5 725 MHz and 5 875 MHz respectively shall instead meet the unwanted emission limits of clause 4.3.1.

Figure 1: Emission Mask

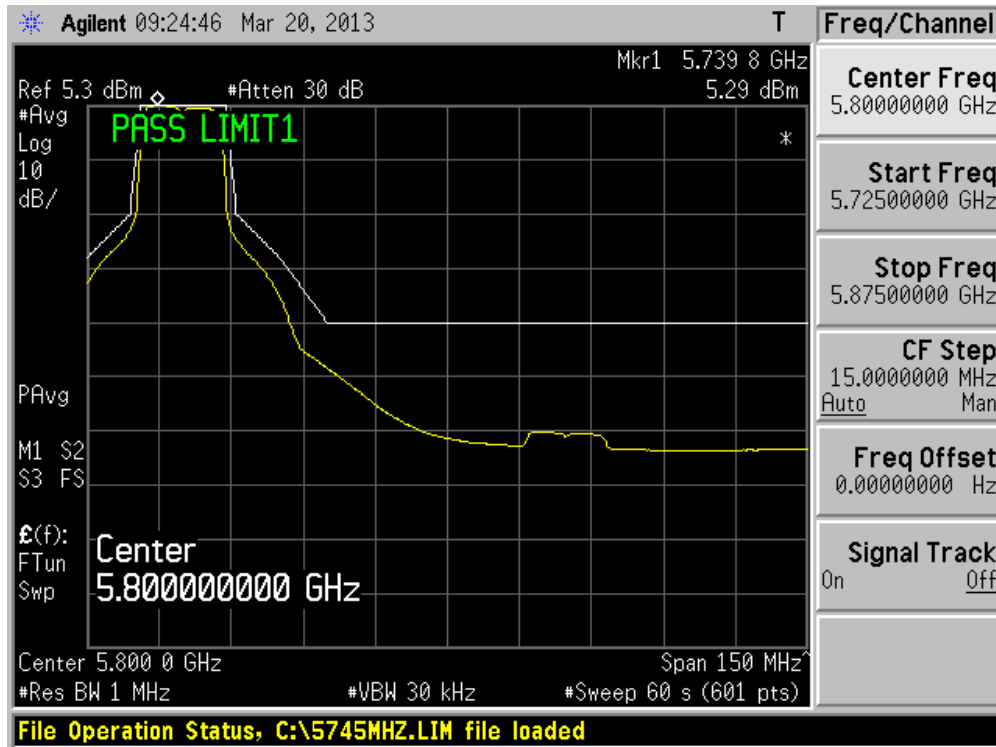
6.4. Test Procedure

Refer to ETSI EN 302 502 V1.2.1 (2008-07) Clause 5.3.4.2

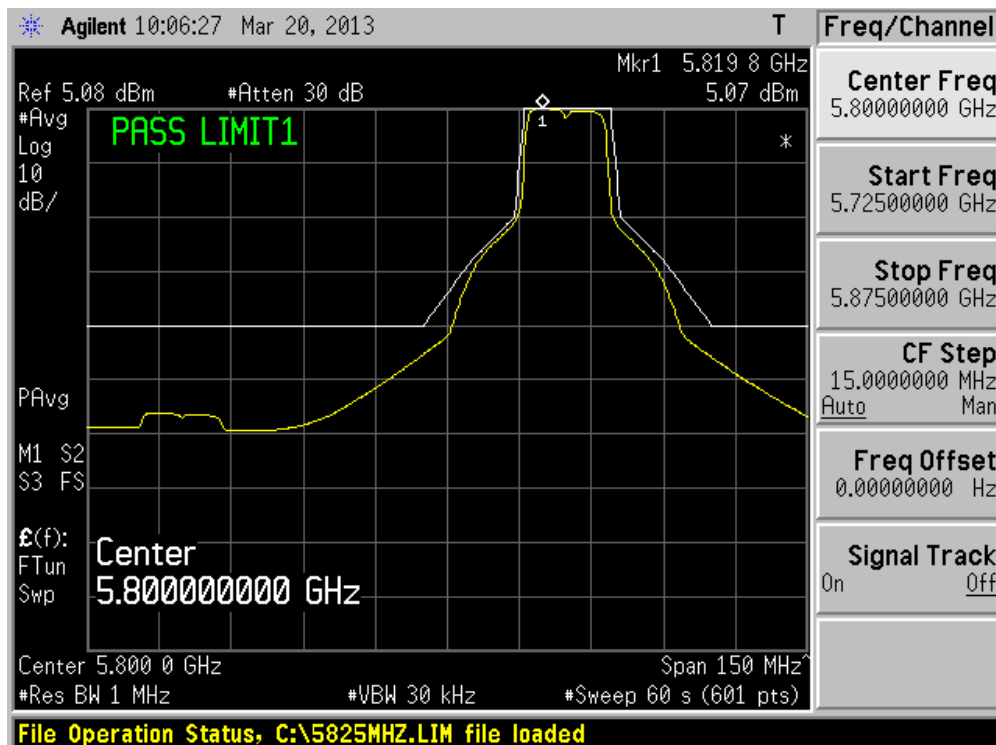
6.5. Test Result

Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Transmitter Unwanted Emissions Within the 5725 MHz to 5875 MHz Band
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 0)

Channel 149

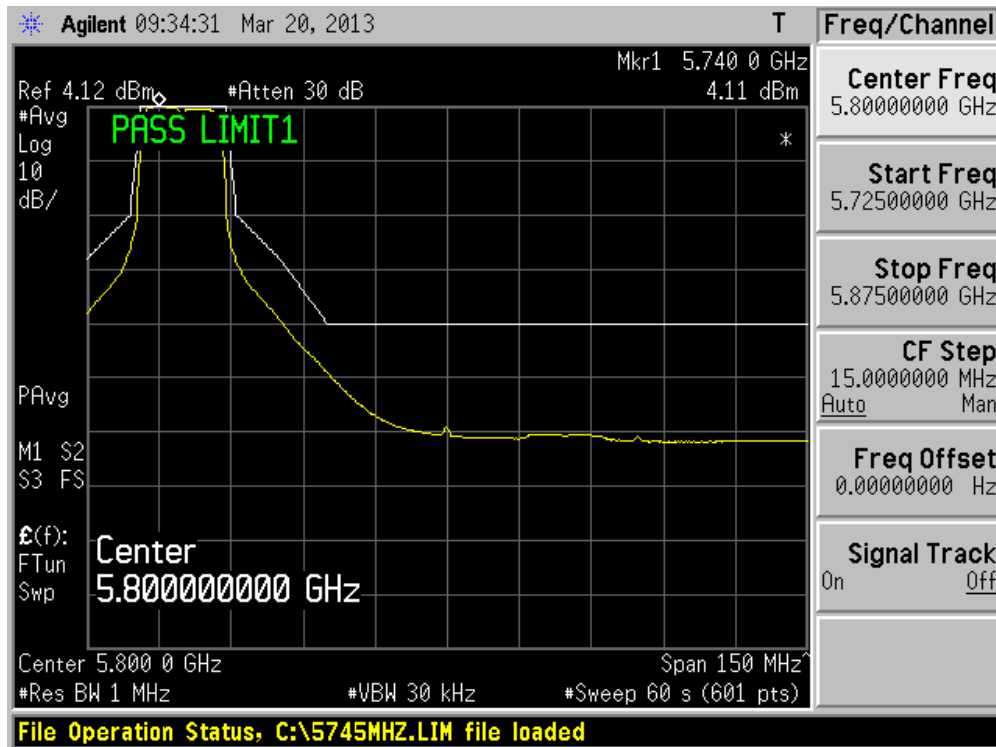


Channel 165

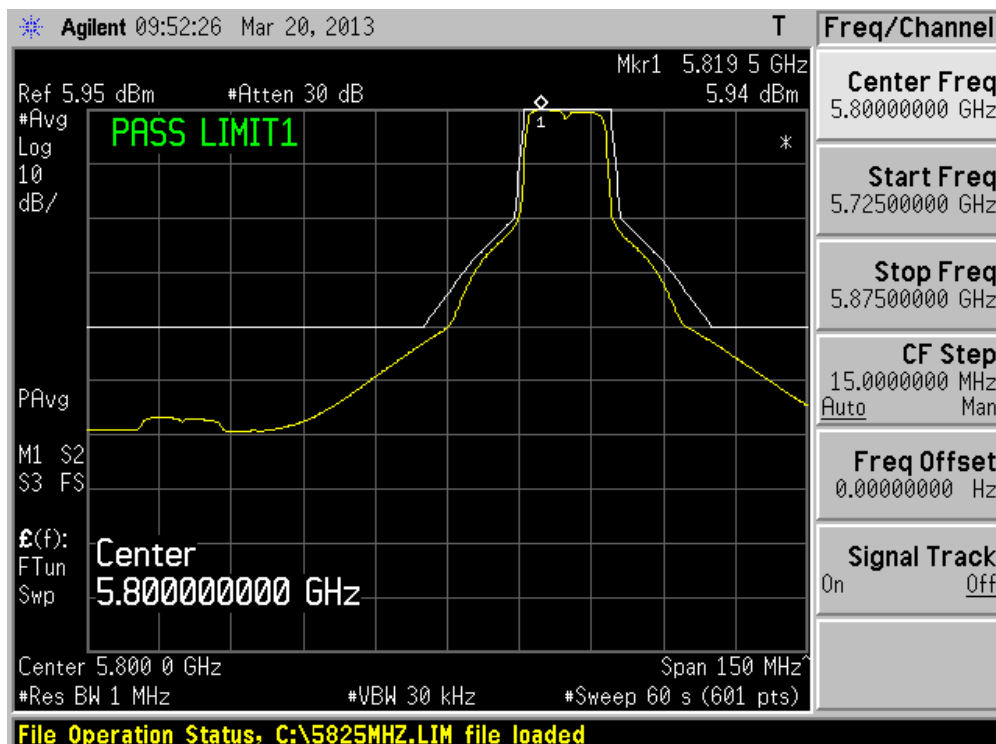


Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Transmitter Unwanted Emissions Within the 5725 MHz to 5875 MHz Band
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 1)

Channel 149

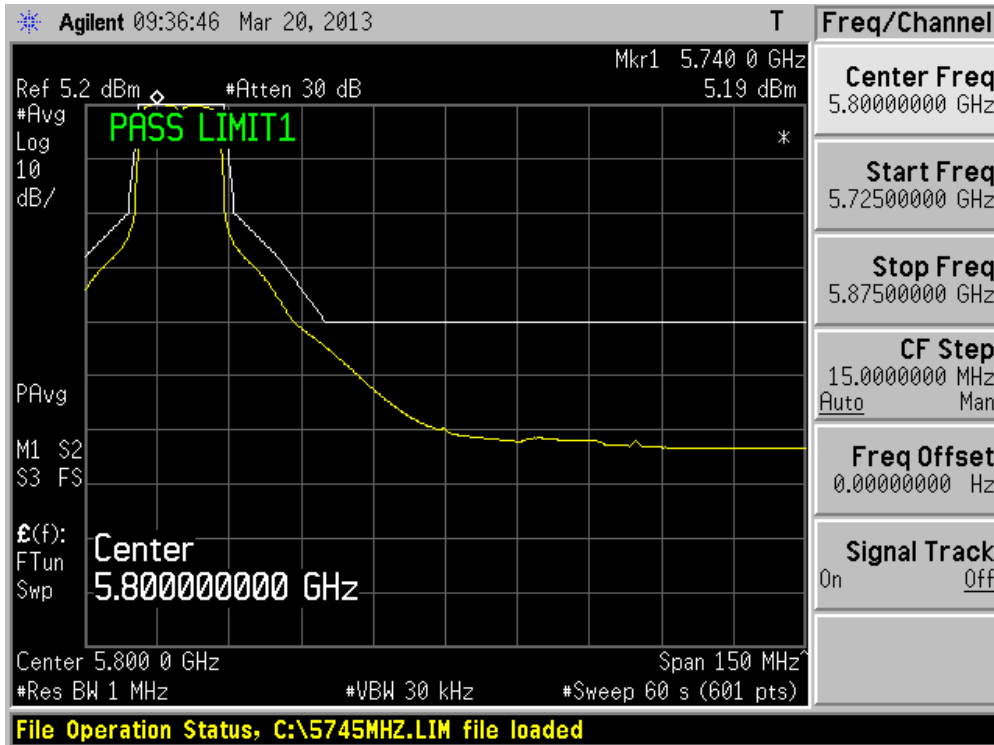


Channel 165

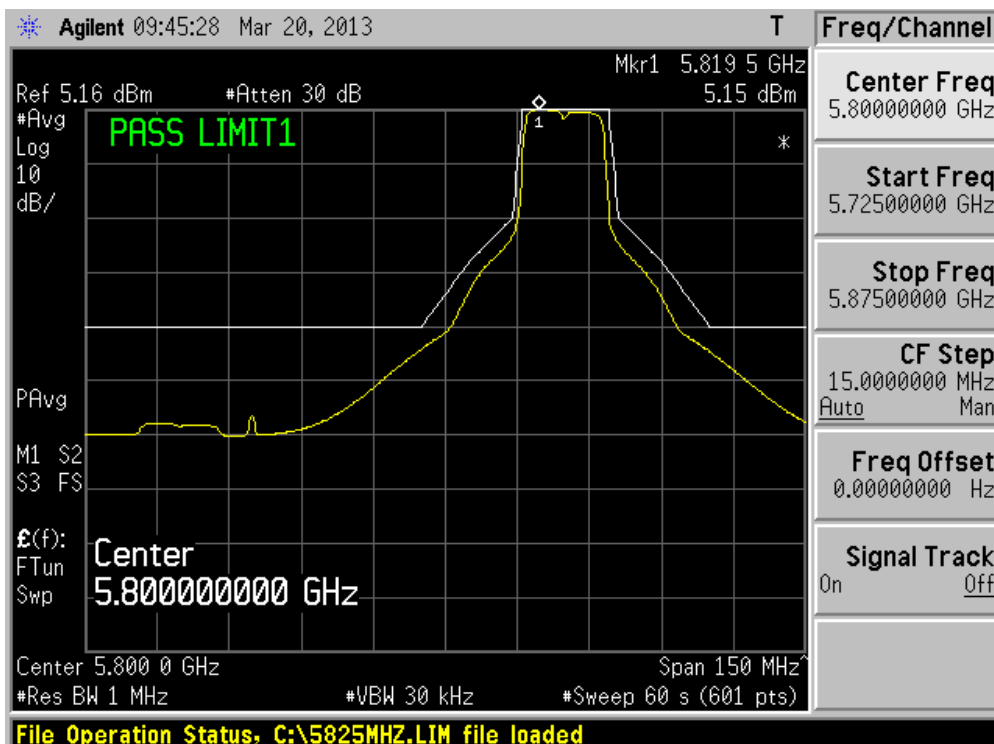


Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Transmitter Unwanted Emissions Within the 5725 MHz to 5875 MHz Band
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 2)

Channel 149



Channel 165

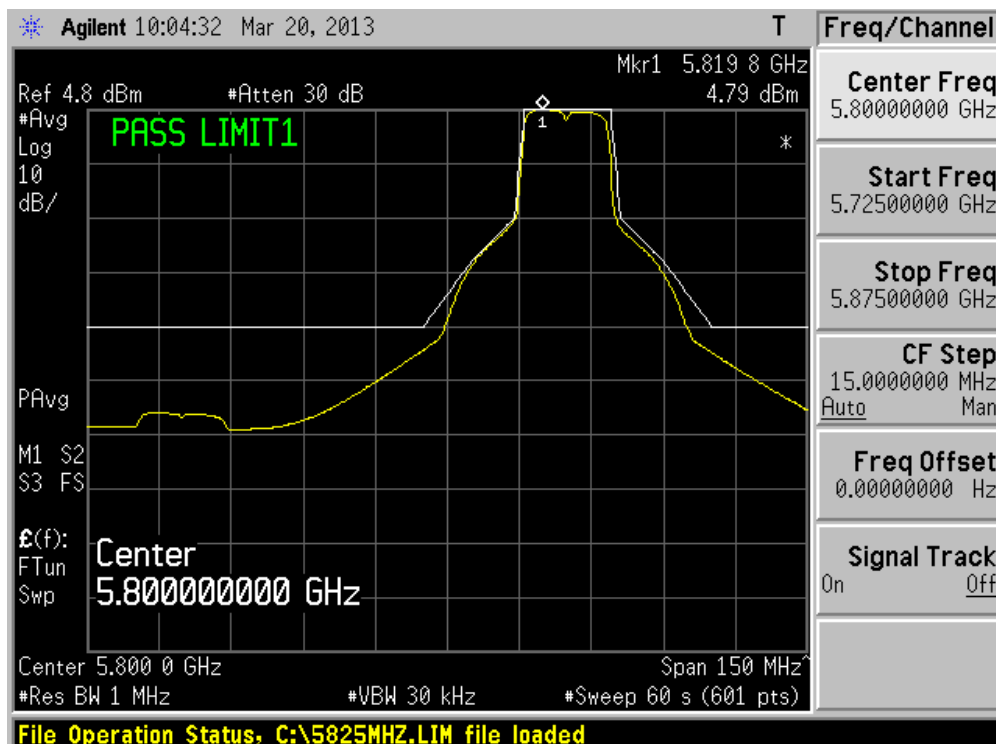


Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Transmitter Unwanted Emissions Within the 5725 MHz to 5875 MHz Band
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 0)

Channel 149

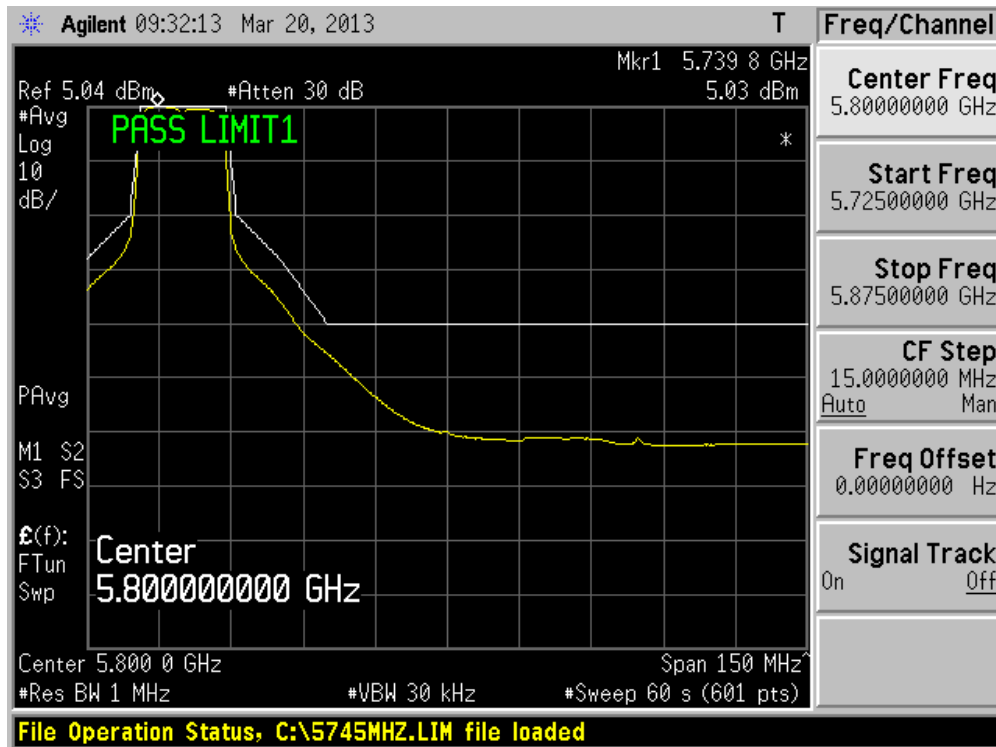


Channel 165

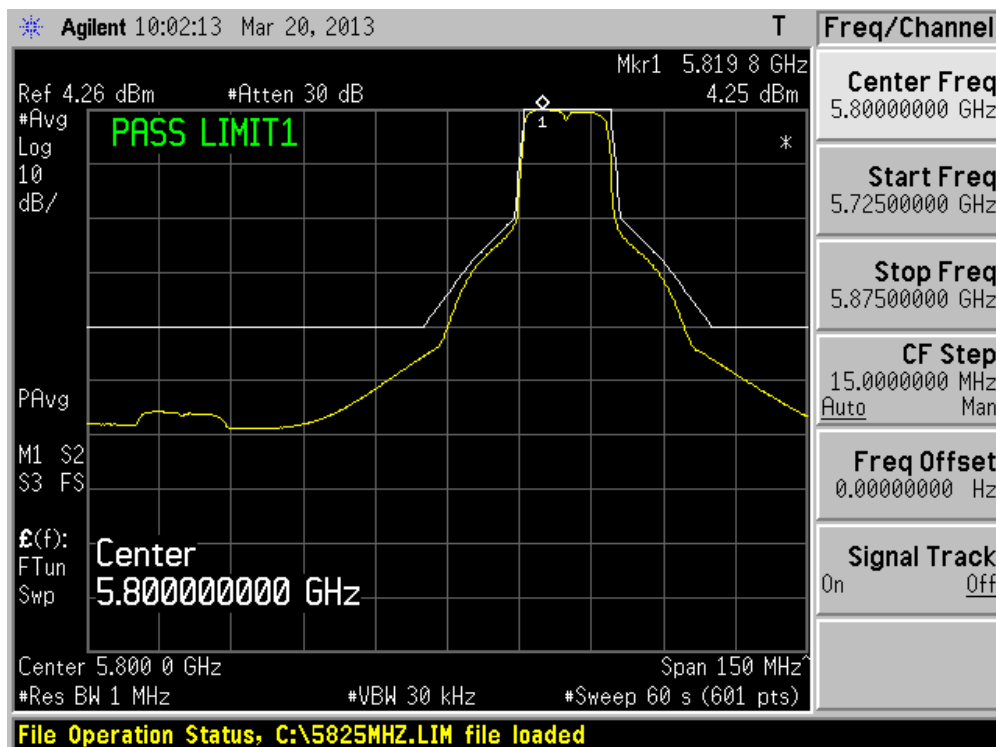


Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Transmitter Unwanted Emissions Within the 5725 MHz to 5875 MHz Band
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 1)

Channel 149

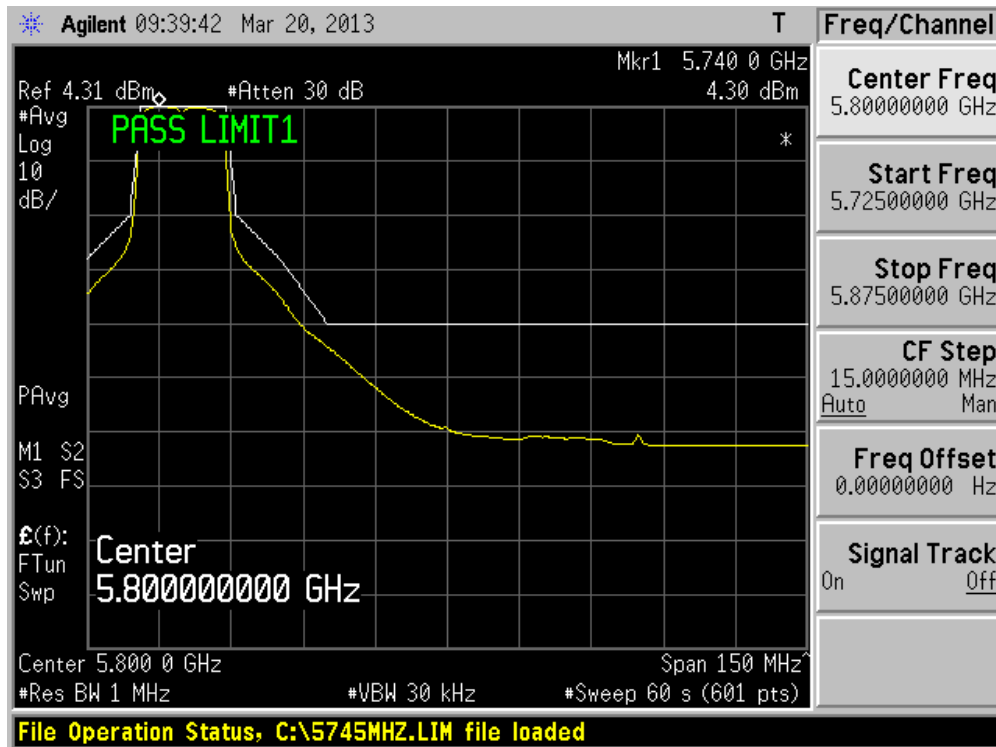


Channel 165

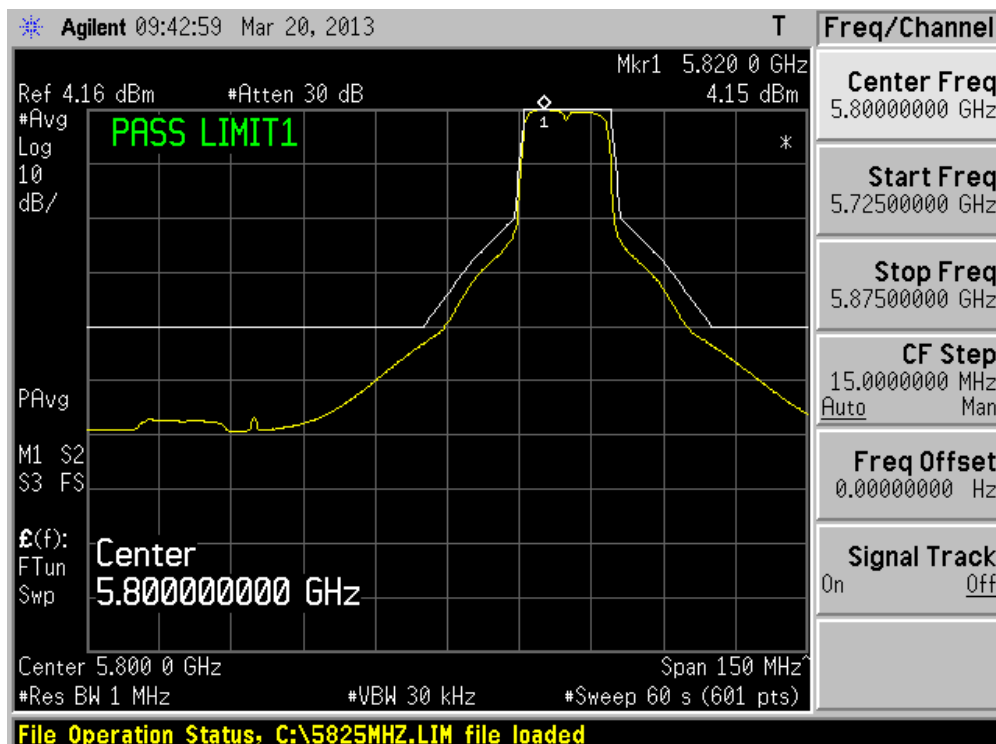


Product	: WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	: Transmitter Unwanted Emissions Within the 5725 MHz to 5875 MHz Band
Test Site	: TR8
Test Mode	: Mode 2: Transmit by 802.11n(20MHz) (Chain 2)

Channel 149



Channel 165



7. Receiver Spurious Emissions

7.1. Test Equipment

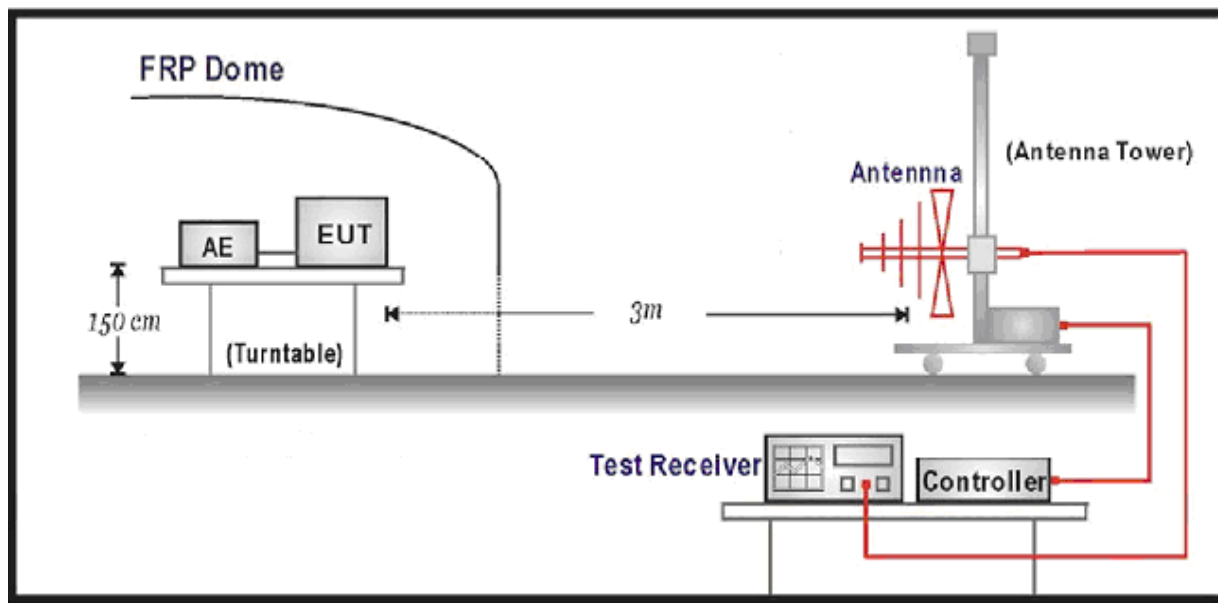
Receiver Spurious Emissions / TR8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
PSG Analog S.G.	Agilent	E8257D	MY44321116	2014.03.30
Preamplifier	Quietek	AP-025C	CHM-0503006	2014.04.11
Preamplifier	Quietek	AP-180C	CHM-0602013	2014.04.11
Bilog Type Antenna	Schaffner	CBL6141A	4278	NA
Half Wave Tuned Dipole Antenna	COM-POWER	AD-100	40137	2013.11.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	737	2013.11.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	499	2014.06.08
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2013.11.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	295	2013.11.24
Temperature/Humidity Meter	zhicheng	ZC1-2	AC6-TH	2014.01.11

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

7.2. Test Setup

For Radiated Measurement



7.3. Limit

Frequency Range	Maximum Power, ERP	Measurement Bandwidth
30 MHz to 1GHz	-57 dBm	100 kHz
1 GHz to 26.5 GHz	-47 dBm	1 MHz

7.4. Test Procedure

Refer to ETSI EN 302 502 V1.2.1 (2008-07) Clause 5.3.5

7.5. Test Result

Test by panel antenna

Mode 3: 802.11n(20MHz) (Chain 0+1+2)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
333.1	H	-67.4	-57	-10.4	PK
333.1	V	-72.7	-57	-15.7	PK
699.7	H	-62.8	-57	-5.8	PK
699.7	V	-66.5	-57	-9.5	PK
1204.0	H	-53.7	-47	-6.7	PK
1204.0	V	-51.3	-47	-4.3	PK
3142.0	H	-56.3	-47	-9.3	PK
3601.0	V	-53.4	-47	-6.4	PK
Channel 165 (5825MHz)					
333.1	H	-67.6	-57	-10.6	PK
333.1	V	-73.9	-57	-16.9	PK
699.7	H	-62.2	-57	-5.2	PK
699.7	V	-66.4	-57	-9.4	PK
1501.5	H	-60.1	-47	-13.1	PK
1501.5	V	-59.7	-47	-12.7	PK
1799.0	H	-58.4	-47	-11.4	PK
1799.0	V	-57.6	-47	-10.6	PK

Test by dipole antenna 1#

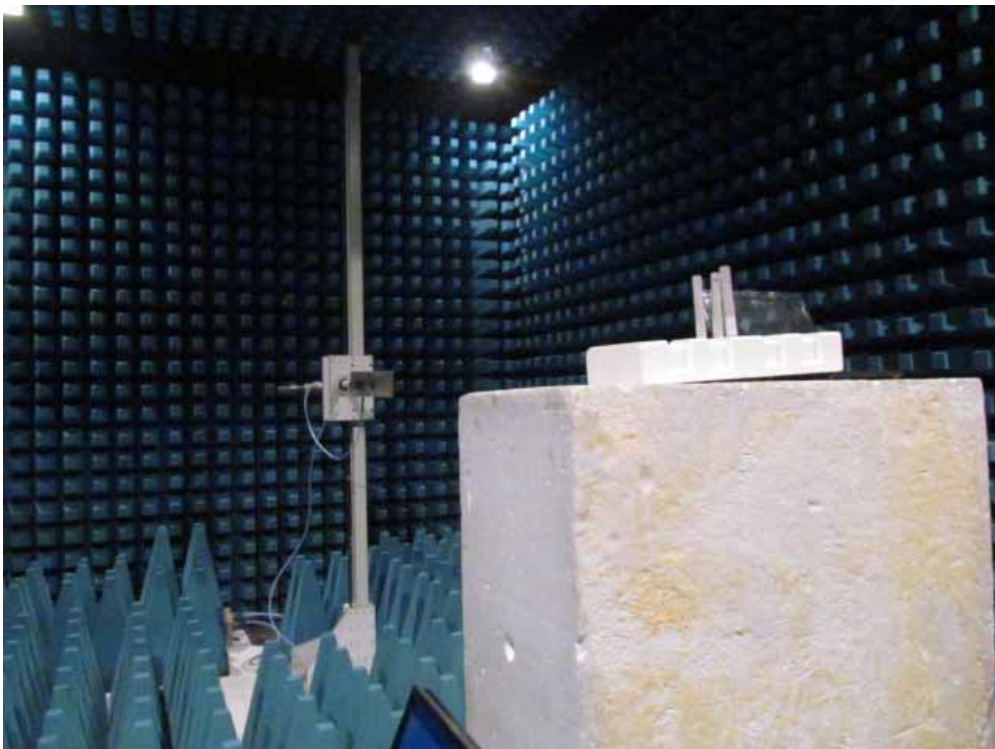
Mode 3: 802.11n(20MHz) (Chain 0+1+2)					
Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 149 (5745MHz)					
236.6	H	-75.3	-57	-18.3	PK
234.7	V	-75.2	-57	-18.2	PK
463.0	H	-75.5	-57	-18.5	PK
448.1	V	-72.8	-57	-15.8	PK
1064.6	H	-51.8	-47	-4.8	PK
1148.3	V	-53.9	-47	-6.9	PK
1443.6	H	-51.9	-47	-4.9	PK
1799.0	V	-51.5	-47	-4.5	PK
Channel 165 (5825MHz)					
252.3	H	-75.3	-57	-18.3	PK
247.2	V	-72.6	-57	-15.6	PK
467.7	H	-75.9	-57	-18.9	PK
384.1	V	-72.7	-57	-15.7	PK
1096.9	H	-53.7	-47	-6.7	PK
1333.4	V	-52.4	-47	-5.4	PK
1445.0	H	-52.3	-47	-5.3	PK
1800.5	V	-52.5	-47	-5.5	PK

7.6. Test Photograph

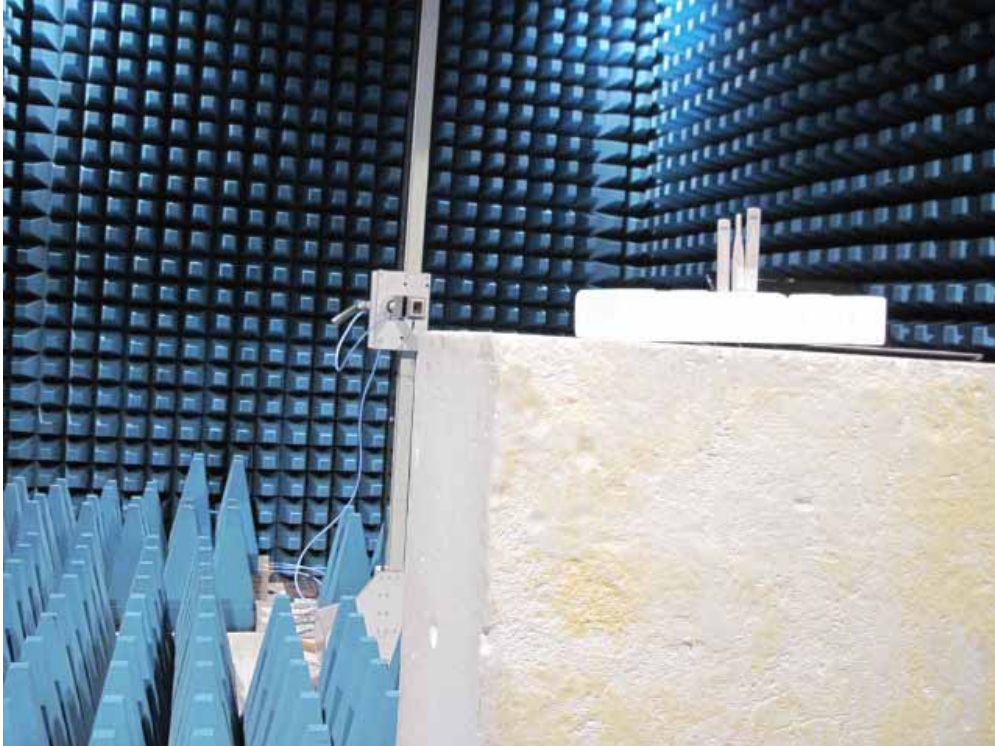
Description: Receive Spurious Emissions Test Setup for Below 1GHz



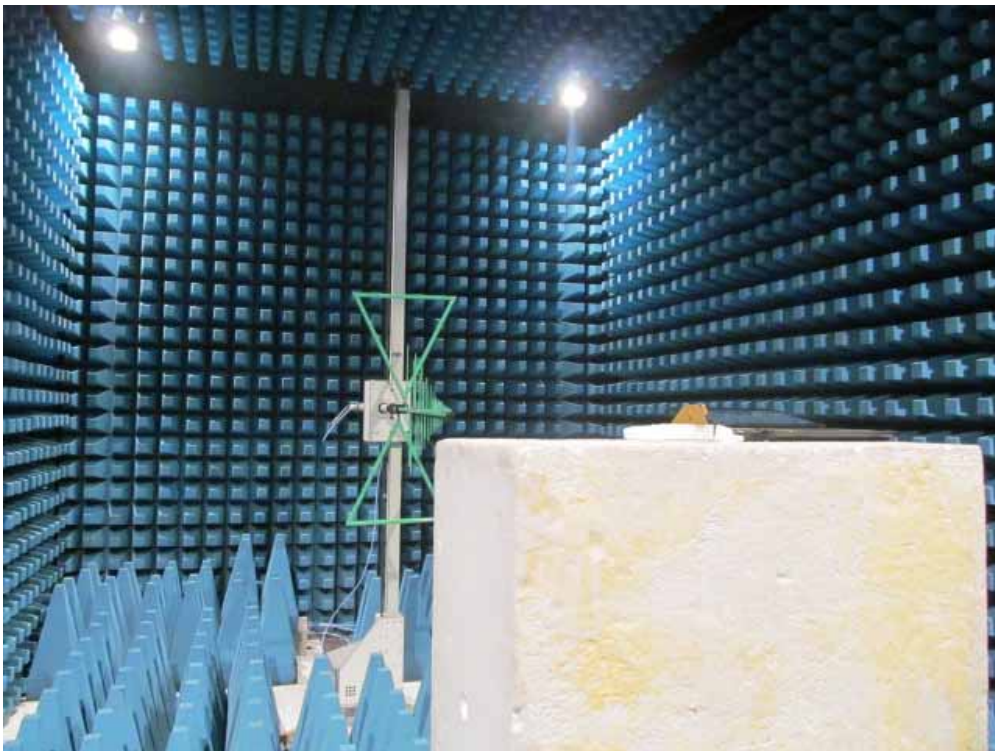
Description: Receive Spurious Emissions Test Setup for 1~18GHz



Description: Receive Spurious Emissions Test Setup for 18~26.5GHz



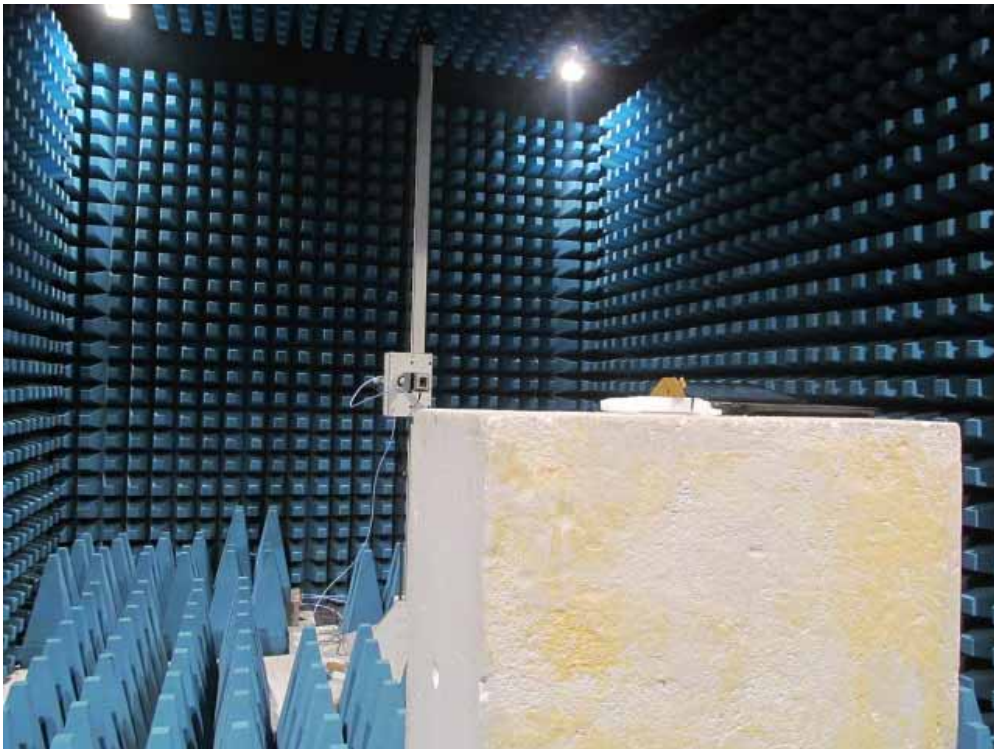
Description: Receive Spurious Emissions Test Setup for Below 1GHz



Description: Receive Spurious Emissions Test Setup for Above 1GHz



Description: Receive Spurious Emissions Test Setup for 18~26.5GHz



8. Dynamic Frequency Selection (DFS)

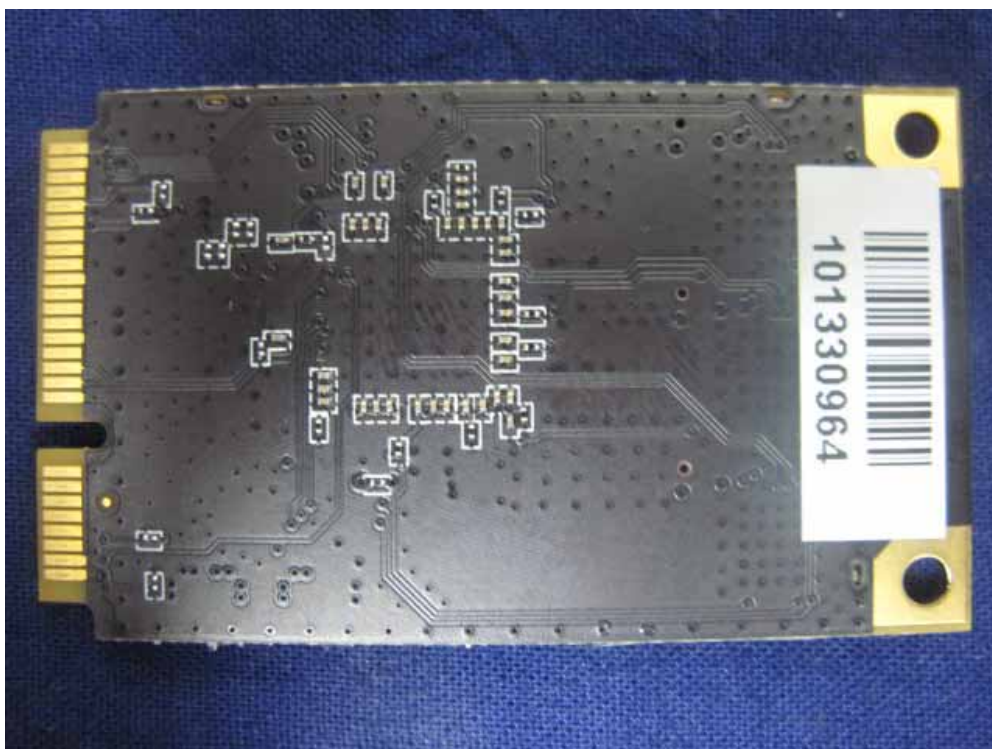
Please refer to report number 132S008R-DFS-P01V01.

9. Attachment
➤ EUT Photograph

(1) EUT Photo



(2) EUT Photo



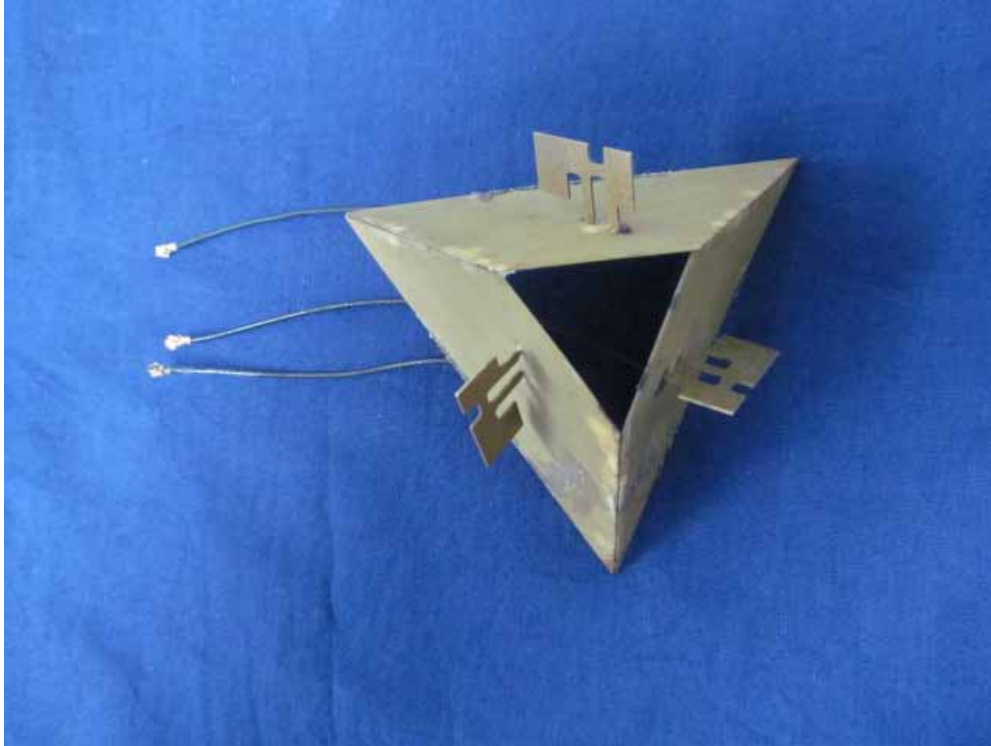
(3) EUT Photo



(4) EUT Photo



(5) EUT Photo



(6) EUT Photo

