Global United Technology Services Co., Ltd.

Report No.: GTS201607000066E02

SPECTRUM REPORT (WIFI)

Applicant:	Red Bear Company Limited
Address of Applicant:	1711 Block B, Wah Luen Industrial Centre, 15-21 Wong Chuk Yeung Street, Fo Tan, Hong Kong
Equipment Under Test (EUT)	
Product Name:	RedBear IoT pHAT
Model No.:	PHAT-IOT
Applicable standards:	ETSI EN 300 328 V1.9.1 (2015-02)
Date of sample receipt:	July 06, 2016
Date of Test:	July 07-12, 2016
Date of report issue:	July 13, 2016
Test Result :	PASS *

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives. The protection requirements with respect to electromagnetic compatibility contained in Directive 1999/5/EC are considered.

Robinson Lo
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of GTS or testing done by GTS in connection with, distribution or use of the product described in this report must be approved by GTS in writing.

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.

2 Version

Version No.	Date	Description
00	*July 13, 2016*	*Original*

Prepared By:	Edward.pan	***Date:***	*July 13, 2016*
	Project Engineer		
Check By:	Andy_wu	***Date:***	*July 13, 2016*
	Reviewer		

3 Contents

4 Test Summary

Radio Spectrum Matter (RSM) Part of Tx					
Test	**Test Requirement**	**Test method**	**Limit/Severity**	**Uncertainty**	**Result**
RF Output Power	Clause 4.3.2.2	Clause 5.3.2.2	20dBm	±1.5dB	PASS
Power Spectral Density	Clause 4.3.2.3	Clause 5.3.3.2	10dBm/MHz	±3dB	PASS
Duty Cycle, Tx-sequence, Tx-gap	Clause 4.3.2.4	Clause 5.3.2.2	Clause 4.3.2.4.3	±5 %	N/A
Medium Utilisation (MU) factor	Clause 4.3.2.5	Clause 5.3.2.2	≤ 10%	±5 %	N/A
Adaptivity	Clause 4.3.2.6	Clause 5.3.7.2	Clause 4.3.2.6.2.2 & Clause 4.3.2.6.3.2 & Clause 4.3.2.6.4.2	--	PASS
Occupied Channel Bandwidth	Clause 4.3.2.7	Clause 5.3.8.2	Clause 4.3.2.7.3	±5 %	PASS
Transmitter unwanted emissions in the OOB domain	Clause 4.3.2.8	Clause 5.3.9.2	Clause 4.3.2.8.3	±3dB	PASS
Transmitter unwanted emissions in the spurious domain	Clause 4.3.2.9	Clause 5.3.10.2	Clause 4.3.2.9.3	±6dB	PASS
Radio Spectrum Matter (RSM) Part of Rx					
Receiver spurious emissions	Clause 4.3.2.10	Clause 5.3.11.2	Clause 4.3.2.10.3	±6dB	PASS
Receiver Blocking	Clause 4.3.2.11	Clause 5.3.7.2	Clause 4.3.2.11.3	--	PASS
Geo-location capability	Clause 4.3.2.12	--	--	--	N/A

Remark:

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

Temperature (Uncertainty): ±1°C   Humidity(Uncertainty): ±5%

Uncertainty: ± 3%(for DC and low frequency voltages)

5 General Information

5.1 Client Information

Applicant:	Red Bear Company Limited
Address of Applicant:	1711 Block B, Wah Luen Industrial Centre, 15-21 Wong Chuk Yeung Street Fo Tan, Hong Kong
Manufacturer/Factory:	Red Bear Company Limited
Address of Manufacturer/Factory:	1711 Block B, Wah Luen Industrial Centre, 15-21 Wong Chuk Yeung Street Fo Tan, Hong Kong

5.2 General Description of EUT

Product Name:	RedBear IoT pHAT
Model No.:	PHAT-IOT
Operation Frequency:	2412MHz~2472MHz(802.11b/802.11g/802.11n(H20))
Channel numbers:	13 for 802.11b/802.11g/802.11n(HT20)
Channel separation:	5MHz
Modulation Technology: (IEEE 802.11b)	Direct Sequence Spread Spectrum(DSSS)
Modulation Technology: (IEEE 802.11g/802.11n)	Orthogonal Frequency Division Multiplexing(OFDM)
Antenna Type:	PCB Antenna
Antenna gain:	3.3dBi (declare by Applicant)
Power Supply:	DC 5.0V

WIFI Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	5	2432MHz	9	2452MHz	13	2472MHz
2	2417MHz	6	2437MHz	10	2457MHz		
3	2422MHz	7	2442MHz	11	2462MHz		
4	2427MHz	8	2447MHz	12	2467MHz		

The EUT operation in above frequency list, and used test software to control the EUT for staying in continuous transmitting and receiving mode. So test frequency is below:

Test channel	**Frequency (MHz)**
	802.11b/802.11g/802.11n(HT20)
Lowest channel	2412MHz
Middle channel	2442MHz
Highest channel	2472MHz

5.3 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	*802.11b*	*802.11g*	*802.11n(HT20)*
Data rate	*1Mbps*	*6Mbps*	*6.5Mbps*

5.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, June 22, 2016.

● **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. Has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, June 26, 2013.

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.
Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102
Tel: 0755-27798480
Fax: 0755-27798960

5.6 Description of Support Units

The EUT has been tested as an independent unit.

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.

6 Test Instruments List

Radiated:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 27 2016	Mar. 26 2017
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June 29 2016	June 28 2017
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 21 2016	Feb. 20 2017
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 25 2016	June 24 2017
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 26 2016	Mar. 25 2017
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	Mar. 27 2016	Mar. 26 2017
9	Coaxial Cable	GTS	N/A	GTS211	Mar. 27 2016	Mar. 26 2017
10	Coaxial cable	GTS	N/A	GTS210	Mar. 27 2016	Mar. 26 2017
11	Coaxial Cable	GTS	N/A	GTS212	Mar. 27 2016	Mar. 26 2017
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June 29 2016	June 28 2017
13	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	June 29 2016	June 28 2017
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 25 2016	June 24 2017
15	Band filter	Amindeon	82346	GTS219	Mar. 27 2016	Mar. 26 2017
16	Constant temperature and humidity box	Oregon Scientific	BA-888	GTS248	May 08 2016	May 07 2017
17	D.C. Power Supply	Instek	PS-3030	GTS232	May 08 2016	May 07 2017

Conducted:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Signal Analyzer	Agilent	N9010A	MY48030494	Jan. 18 2016	Jan. 17 2017
2	vector Signal Generator	Agilent	E4438C	MY49070163	Jan. 18 2016	Jan. 17 2017
3	splitter	Mini-Circuits	ZAP-50W	NN256400424	Jan. 18 2016	Jan. 17 2017
4	Directional Coupler	Agilent	87300C	MY44300299	Jan. 18 2016	Jan. 17 2017
5	vector Signal Generator	Agilent	E4438C	US44271917	Jan. 18 2016	Jan. 17 2017
6	X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54080020	Jan. 18 2016	Jan. 17 2017
7	X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54110001	Jan. 18 2016	Jan. 17 2017
8	X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY53480008	Jan. 18 2016	Jan. 17 2017
9	X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54080019	Jan. 18 2016	Jan. 17 2017
10	4 Ch.Simultaneous Sampling 14 Bits 2 MS/s	Agilent	U2531A	TW54063507	Jan. 18 2016	Jan. 17 2017
11	4 Ch.Simultaneous Sampling 14 Bits 2 MS/s	Agilent	U2531A	TW54063513	Jan. 18 2016	Jan. 17 2017
12	splitter	Mini	PS3-7	4463	Jan. 18 2016	Jan. 17 2017

7 Radio Technical Specification in ETSI EN 300 328

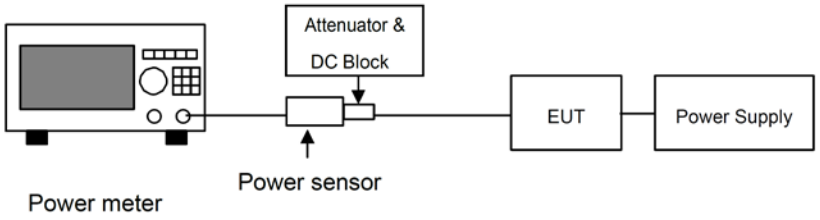
7.1 Test Environment and Mode

Test mode:			
Transmitting mode:	Keep the EUT in transmitting mode with modulation.		
Receiving mode	Keep the EUT in receiving mode.		
Operating Environment:			
Item	**Normal condition**	**Extreme condition**	
		NVHT	**NVLT**
Temperature	+25ºC	+55ºC	-20ºC
Humidity	20%-95%		
Atmospheric Pressure:	1008 mbar		

Setting	Value
Modulation	Other
Adaptive	Yes
Number of Transmission Chains	1
Antenna Gain 1	0dBi
Beamforming Gain	2.14dB
Nominal Channel Bandwidth	20MHz/40MHz
Maximum EIRP	16.68dBm
DUT Frequency not configurable	No
Frequency Low	2412MHz/2422MHz
Frequency Mid	2442MHz
Frequency High	2472MHz/2462MHz
Attenuation/Pathloss File 1	Attenuator Port1
DUT Port Occupied Channel Bandwidth	1
LBT/DAA Based	Yes
DUT Port Adaptivity	1
Channel Occupation Time	13ms

7.2 Transmitter Requirement

7.2.1 RF Output Power

Test Requirement:	ETSI EN 300 328 clause 4.3.2.2
Test Method:	ETSI EN 300 328 clause 5.3.2.2.1.2
Limit:	20dBm
Test setup:	
Test procedure:	**Step 1:** Use a fast power sensor suitable for 2,4 GHz and capable of 1 MS/s. Use the following settings: - Sample speed 1 MS/s or faster. - The samples must represent the power of the signal. - Measurement duration: For non-adaptive equipment: equal to the observation period defined in clauses 4.3.1.3.2 or 4.3.2.4.2. For adaptive equipment, the measurement duration shall be long enough to ensure a minimum number of bursts (at least 10) are captured. NOTE 1: For adaptive equipment, to increase the measurement accuracy, a higher number of bursts may be used. **Step 2:** For conducted measurements on devices with one transmit chain: -Connect the power sensor to the transmit port, sample the transmit signal and store the raw data.Use these stored samples in all following steps. For conducted measurements on devices with multiple transmit chains: -Connect one power sensor to each transmit port for a synchronous measurement on all transmit ports. -Trigger the power sensors so that they start sampling at the same time. Make sure the time difference between the samples of all sensors is less than 500ns. -For each individual smpling point(time domain), sum the coincident power samples of all ports and store them. Use these summed samples in all following steps. **Step 3:** Find the start and stop times of each burst in the stored measurement samples. The start and stop times are defined as the points where the power is at least 30 dB below the highest value of the stored samples in step 2. NOTE 2: In case of insufficient dynamic range,the value of 30dB may

	need to be reduced appropriately. **Step 4:** Between the start and stop times of each individual burst calculate the RMS power over the burst using the formula below. Save these Pburst values, as well as the start and stop times for each burst. $= \frac{1}{\ } \sum_{=1} \quad (\ )$ With “k” being the total number of samples and “n” the actual sample number **Step 5:** The highest of all Pburst values (value "A" in dBm) will be used for maximum e.i.r.p. calculations. **Step 6:** Add the (stated) antenna assembly gain "G" in dBi of the individual antenna. If applicable, add the additional beamforming gain "Y" in dB. If more than one antenna assembly is intended for this power setting, the maximum overall antenna gain (G or G + Y) shall be used. The RF Output Power (P) shall be calculated using the formula below: P = A + G + Y **Step 7:** This value, which shall comply with the limit given in clause 4.3.1.2.3 or clause 4.3.2.2.3, shall be recorded in the test report.
Measurement Record:	Uncertainty: ± 1.5dB
Test Instruments:	See section 6.0
Test mode:	Transmitting mode

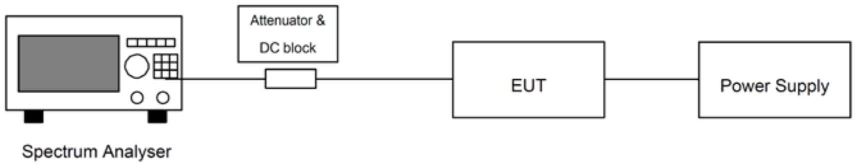
Measurement Data

802.11b mode						
Test conditions	**Channel**	**Burst RMS power (dBm)**	**Antenna Gain(dBi)**	**Calculated Power (dBm)**	**Limit (dBm)**	**Result**
Normal	Lowest	13.01	3.30	16.31	20	Pass
	Middle	13.38	3.30	16.68		
	Highest	13.37	3.30	16.67		
NVHT	Lowest	12.94	3.30	16.24		
	Middle	13.28	3.30	16.58		
	Highest	13.27	3.30	16.57		
NVLT	Lowest	12.99	3.30	16.29		
	Middle	13.36	3.30	16.66		
	Highest	13.35	3.30	16.65		
802.11g mode						
Test conditions	**Channel**	**Burst RMS power (dBm)**	**Antenna Gain(dBi)**	**Calculated Power (dBm)**	**Limit (dBm)**	**Result**
Normal	Lowest	11.73	3.30	15.03	20	Pass
	Middle	11.82	3.30	15.12		
	Highest	11.93	3.30	15.23		
NVHT	Lowest	11.66	3.30	14.96		
	Middle	11.72	3.30	15.02		
	Highest	11.83	3.30	15.13		
NVLT	Lowest	11.71	3.30	15.01		
	Middle	11.80	3.30	15.10		
	Highest	11.91	3.30	15.21		
802.11n(HT20) mode						
Test conditions	**Channel**	**Burst RMS power (dBm)**	**Antenna Gain(dBi)**	**Calculated Power (dBm)**	**Limit (dBm)**	**Result**
Normal	Lowest	10.64	3.30	13.94	20	Pass
	Middle	10.56	3.30	13.86		
	Highest	10.77	3.30	14.07		
NVHT	Lowest	10.57	3.30	13.87		
	Middle	10.46	3.30	13.76		
	Highest	10.67	3.30	13.97		
NVLT	Lowest	10.62	3.30	13.92		
	Middle	10.54	3.30	13.84		
	Highest	10.75	3.30	14.05		

Remark:1>. Volt= Voltage, Temp= Temperature

2>. Duty cycle=100%, Antenna Gain=3.30dBi

7.2.2 Power Spectral Density

Test Requirement:	ETSI EN 300 328 clause 4.3.2.3
Test Method:	ETSI EN 300 328 clause 5.3.3.2.1
Limit:	10dBm/MHz
Test setup:	
Test procedure:	**Step 1:** Connect the UUT to the spectrum analyser and use the following settings: Start Frequency: 2400 MHz Stop Frequency: 2483.5 MHz Resolution BW: 10 kHz Video BW: 30 kHz Sweep Points: > 8350 NOTE:For spectrum analysers not supporting this number of sweep points, the frequency band may be segmented. Detector: RMS Trace Mode: Max Hold Sweep time: 10s; the sweep time may be increased further until a value where the sweep time has no impact on the RMS value of the signal For non-continuous signals, wait for the trace to stabilize. Save the (trace data) set to a file. **Step 2:** For conducted measurements on smart antenna systems using either operating mode 2 or 3 (see clause 5.1.3.2), repeat the measurement for each of the transmit ports. For each sampling point(frequency domain) , add up the coincident power values(in mW) for the different transmit chains and use this as the new data set. **Step 3:** Add up the values for power for all the samples in the file using the formula below. $= \sum_{=1} \quad ( )$ With “k” being the total number of samples and “n” the actual sample Number. **Step 4:** Normalize the individual values for power(in dBm) so that the sum is equal to the RF output Power (e.i.r.p.) measured in clause 5.3.2 and save the corrected data. The following formulas can be used: With”n” being the actual sample number

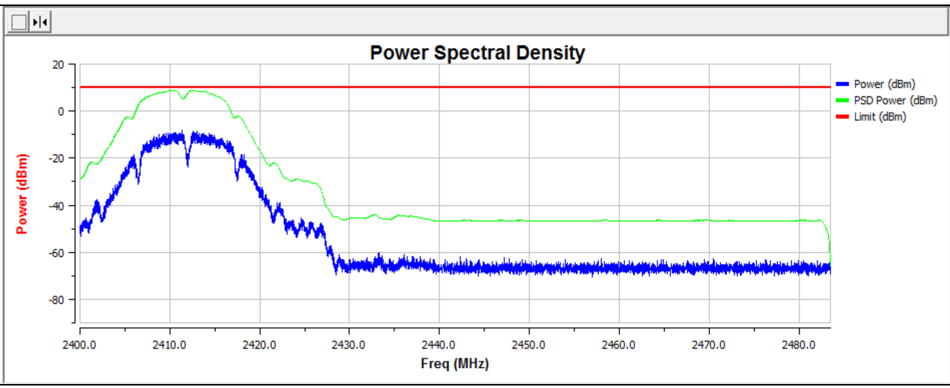
	Step 5: Starting from the first sample in the file (lowest frequency), add up the power(in mW) of the following samples representing a 1 MHz segment and record the results for power and position (i.e. sample #1 to #100). This is the Power Spectral Density (e.i.r.p.) for the first 1 MHz segment which shall be recorded. **Step 6:** Shift the start point of the samples added up in step 5 by one sample and repeat the procedure in step 5 (i.e. sample #2 to #101). **Step 7:** Repeat step 6 until the end of the data set and record the Power Spectral Density values for each of the 1 MHz segments. **Step 8:** From all the recorded results, the highest value is the maximum Power Spectral Density for the UUT. This value, which shall comply with the limit given in clause 4.3.2.3.3,shall be recorded in the test report.
Measurement Record:	Uncertainty: ±3dB
Test Instruments:	See section 6.0
Test mode:	Transmitting mode

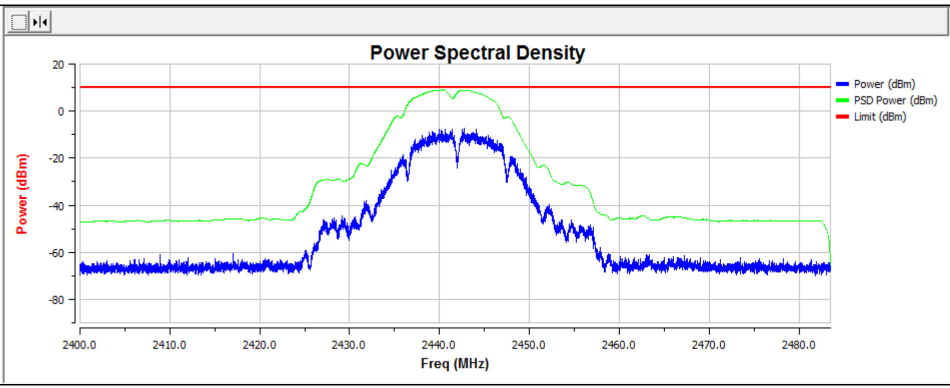
Measurement Data

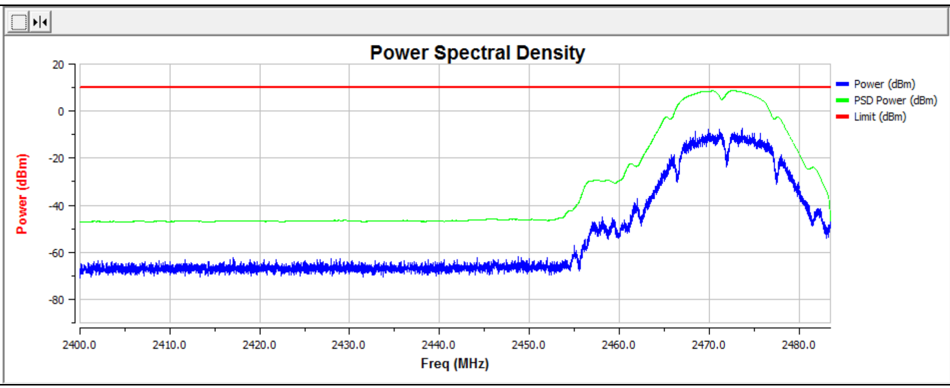
802.11b mode			
Channel	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
CH 1	8.49	10.00	Pass
CH 7	8.53		
CH 13	8.37		
802.11g mode			
Channel	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
CH 1	4.41	10.00	Pass
CH 7	4.55		
CH 13	4.28		
802.11n-HT20 mode			
Channel	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
CH 1	4.18	10.00	Pass
CH 7	4.40		
CH 13	4.25		

Test plots are followed:

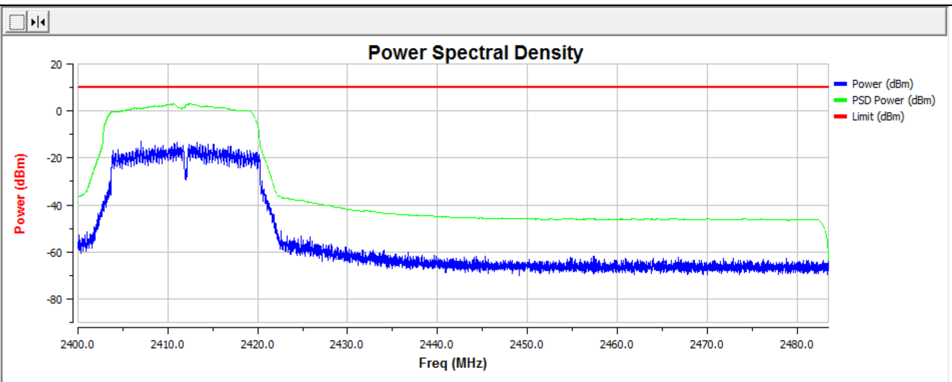
802.11b mode

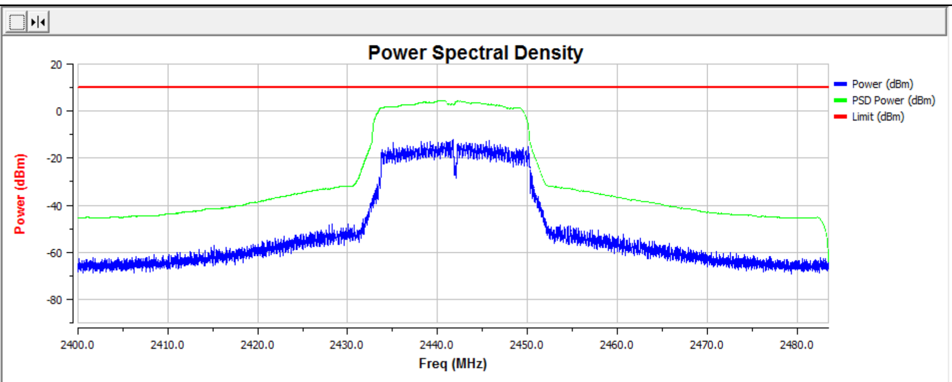


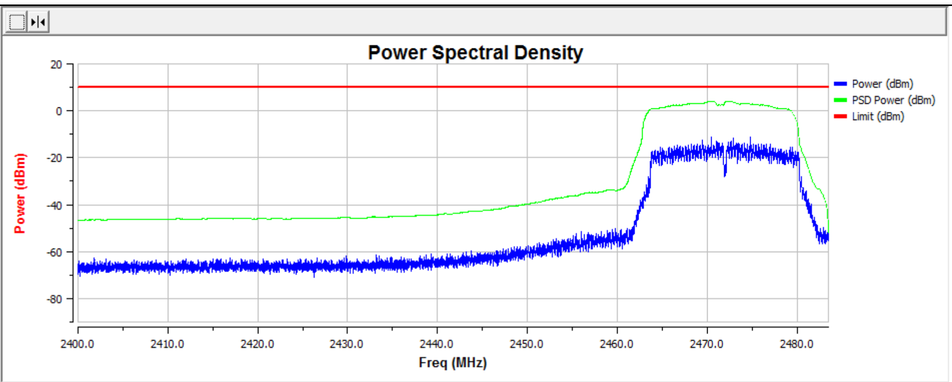




802.11g mode


Power Spectral Density
Power (dBm)
PSD Power (dBm)
Limit (dBm)
Power (dBm)
Freq (MHz)
20
0
-20
-40
-60
-80
2400.0
2410.0
2420.0
2430.0
2440.0
2450.0
2460.0
2470.0
2480.0


Power Spectral Density
Power (dBm)
PSD Power (dBm)
Limit (dBm)
Power (dBm)
Freq (MHz)
20
0
-20
-40
-60
-80
2400.0
2410.0
2420.0
2430.0
2440.0
2450.0
2460.0
2470.0
2480.0


Power Spectral Density
Power (dBm)
PSD Power (dBm)
Limit (dBm)
Power (dBm)
Freq (MHz)
20
0
-20
-40
-60
-80
2400.0
2410.0
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2440.0
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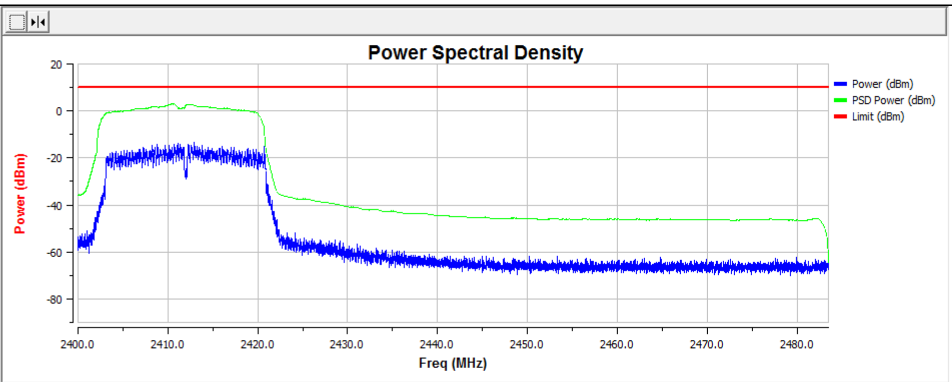
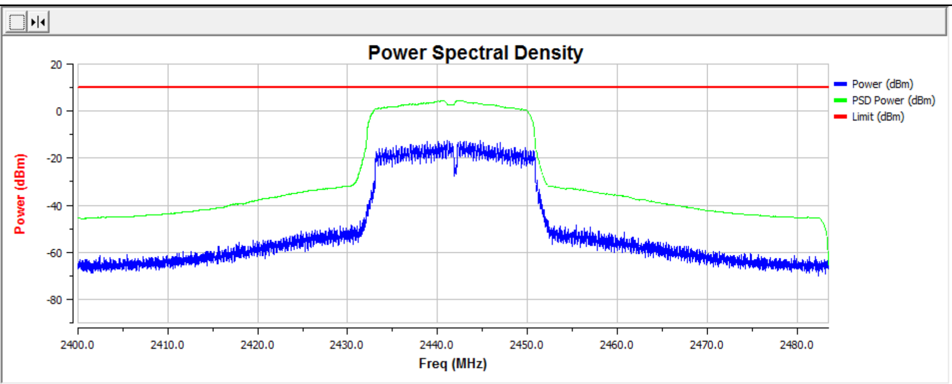
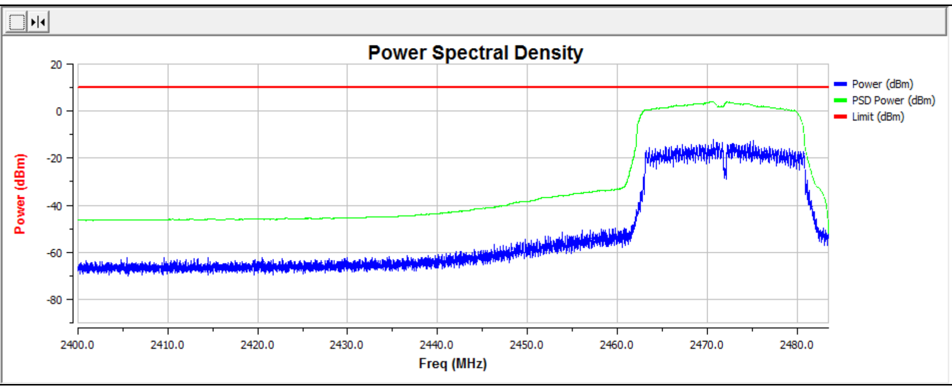
2470.0
2480.0

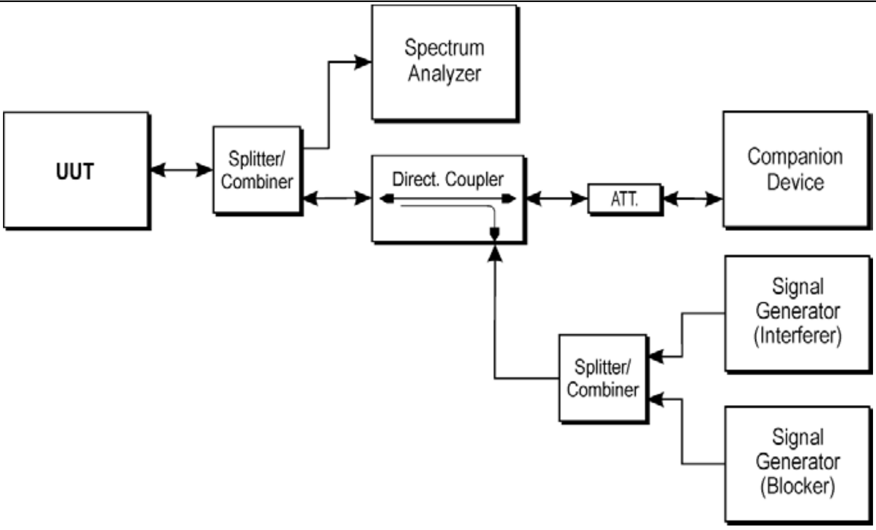
802.11n-HT20 mode







7.2.3 Adaptivity

Test Requirement:	ETSI EN 300 328 clause 4.3.2.6
Test Method:	ETSI EN 300 328 clause 5.3.7.2.1
Limit:	Clause 4.3.2.6.2.2 & Clause 4.3.2.6.3.2 & Clause 4.3.2.6.4.2
Test setup:	
Test procedure:	**1. Adaptive Frequency Hopping equipment using DAA** The different steps below define the procedure to verify the efficiency of the DAA based adaptive mechanisms for frequency hopping equipment. These mechanisms are described in clause 4.3.1.7. **Step 1:** The UUT may connect to a companion device during the test. The interference signal generator, the blocking signal generator, the spectrum analyser, the UUT and the companion device are connected using a set-up equivalent to the example given by figure 5, although the interference and blocking signal generators do not generate any signals at this point in time. The spectrum analyser is used to monitor the transmissions of the UUT in response to the interfering and the blocking signals. For the hopping frequency to be tested, adjust the received signal level (wanted signal from the companion device) at the UUT to the value defined in table 3 (clause 4). NOTE 1: Testing of Unidirectional equipment does not require a link to be established with a companion device. The analyzer shall be set as follows: RBW: use next available RBW setting below the measured Occupied Channel Bandwidth Filter type: Channel Filter VBW: ≥ RBW Detector Mode: RMS Centre Frequency: Equal to the hopping frequency to be tested Span: 0Hz Sweep time: >Channel Occupancy Time of the UUT. If the

	Channel Occupancy Time is non-contiguous (non-LBT based equipment), the sweep time shall be sufficient to cover the period over which the Channel Occupancy Time is spread out. Trace Mode: Clear/Write Trigger Mode: Video **Step 2:** Configure the UUT for normal transmissions with a sufficiently high payload to resulting in a minimum transmitter activity ratio(TxOn+TxOff)) of 0.3.Where this is not possible, the UUT shall be configured to the maximum payload possible. Using the procedure defined in clause 5.3.7.2.1.4, it shall be verified that, for equipment with a dwell time greater than the maximum allowable Channel Occupancy Time, the UUT complies with the maximum Channel Occupancy Time and minimum Idle Period defined in clauses 4.3.1.7.2.2 and 4.3.1.7.3.2. **Step 3: Adding the interference signal** An interference signal as defined in clause B.6 is injected centred on the hopping frequency being tested. The Power Spectral Density level(at the input of the UUT) of this interference signal shall be equal to the detection threshold defined in clauses 4.3.1.7.2.2 or 4.3.1.7.3.2. **Step 4: Verification of reaction to the interference signal** The spectrum analyser shall be used to monitor the transmissions of the UUT on the selected hopping frequency with the interfering signal injected. This may require the spectrum analyser sweep to be triggered by the start of the interfering signal. Using the procedure defined in clause 5.3.7.2.1.4, it shall be verified that: i) The UUT shall stop transmissions on the hopping frequency being tested. NOTE 2: The UUT is assumed to stop transmissions on this hopping frequency within a period equal to the maximum Channel Occupancy Time defined in clauses 4.3.1.7.2.2 or clause 4.3.1.7.3.2 As stated in clause 4.3.1.7.3.2, the Channel Occupancy Time for non-LBT based frequency hopping systems may be non-contiguous. ii) For LBT based frequency hopping equipment, apart from Short Control Signalling Transmissions (see iii) below), there shall be no subsequent transmissions on this hopping frequency, as long as the interference signal remains present. For non-LBT based frequency hopping equipment, apart from Short Control Signalling Transmissions (see iii) below), there shall be no subsequent transmissions on this hopping frequency for a (silent) period defined in clause 4.3.1.7.3.2 step 2. After that, the UUT may have normal transmissions again for the duration of a single Channel Occupancy Time period (which may be non-contiguous). Because the interference signal is still present, another silent period as defined in clause 4.3.1.7.3.2 step 2 needs to be included. This sequence is repeated as long as the interfering signal is present. NOTE 3: In case of overlapping channels, transmissions in adjacent channels may generate transmission bursts on the channel being

	investigated, however they will have a lower amplitude as on-channel transmissions. Care should be taken to only evaluate the on-channel transmissions. The Time Domain Power Option of the analyser may be used to measure the RMS power of the individual bursts to distinguish on-channel transmissions from transmissions on adjacent channels. In some cases, the RBW may need to be reduced. NOTE 4: To verify that the UUT is not resuming normal transmissions as long as the interference signal is present,the monitoring time may need to be 60s or more. iii) The UUT may continue to have Short Control Signalling Transmissions on the hopping frequency being tested while the interference signal is present. These transmissions shall comply with the limits defined in clause 4.3.1.7.4.2. NOTE 5: The verification of the Short Control Signalling transmissions may require the analyser settings to be changed (e.g. sweep time). iv) Alternatively, the equipment may switch to a non-adaptive mode. **Step 5: Adding the blocking signal** With the interfering signal present, a 100 % duty cycle CW signal is inserted as the blocking signal. The frequency and the level are provided in table 3 of clause 4.3.1.12.3. The spectrum analyser shall be used to monitor the transmissions of the UUT on the selected hopping frequency. This may require the spectrum analyser sweep to be triggered by the start of the blocking signal. Using the procedure defined in clause 5.3.7.2.1.4, it shall be verified that: i) The UUT shall not resume normal transmissions on the hopping frequecy being tested as long as both the interference and blocking signals remain present NOTE 6:To verify that the UUT is not resuming normal transmissions as long as the interference and blocking signals are present, the monitoring time may need to be 60s or more. ii) The UUT may continue to have Short Control Signalling Transmissions on the hopping frequency being tested while the interference and blocking signal are present.These transmissions shall comply with the limits defined in clause 4.3.1.7.4.2 NOTE 7:The verification of the Short Control Signalling transmissions may require the analyser settings to be changed(e.g.sweep time). **Step 6: Removing the interference and blocking signal** On removal of the interference and blocking signal,the UUT is allowed to re-include any channel previously marked as unavailable; however, for non-LBT based equipment, it shall be verified that this shall only be done after the period defined in clause 4.3.1.7.3.2 point 2. **Step 7:** The steps 2 to 6 shall be repeated for each of the hopping frequencies to be tested. **2. Non-LBT based adaptive equipment using modulations other than FHSS** The different steps below define the procedure to verify the efficiency of the non-LBT based DAA adaptive mechanism of equipment using wide band modulations other than FHSS.

	Step 1: The UUT shall connect to a companion device during the test. The interference signal generator, the blocking signal generator, the spectrum analyser, the UUT and the companion device are connected using a set-up equivalent to the example given by figure 5 although the interference and blocking signal generator do not generate any signals at this point in time. The spectrum analyser is used to monitor the transmissions of the UUT in response to the interfering and the blocking signals. Adjust the received signal level (wanted signal from the companion device) at the UUT to the value defined in table 6 (clause 4). NOTE 1: Testing of Unidirectional equipment does not require a link to be established with a companion device. The analyzer shall be set as follows: RBW: ≥ Occupied Channel Bandwidth (if the analyser does not support this setting, the highest available setting s hall be used) VBW: 3 × RBW (if the analyser does not support this setting, the highest available setting shall be used) Detector Mode: RMS Centre Frequency: Equal to the hopping frequency to be tested Span: 0Hz Sweep time: > Channel Occupancy Time of the UUT Trace Mode: Clear/Write Trigger Mode: Video **Step 2:** Configure the UUT for normal transmissions with a sufficiently high payload resulting in a minimum transmitter activity ratio (TxOn+TxOff)) of 0.3 .Where this is not possible , the UUT shall be configured to the maximum payload possible. Using the procedure defined in clause 5.3.7.2.1.4, it shall be verified that the UUT complies with the maximum Channel Occupancy Time and minimum Idle Period defined in clause 4.3.2.6.2.2. **Step 3: Adding the interference signal** An interference signal as defined in clause B.6 is injected centred on the current operating channel of the UUT. The Power Spectral Density level(at the input of the UUT) of this interference signal shall be equal to the detection threshold defined in clauses 4.3.2.6.2.2 step 5). **Step 4: Verification of reaction to the interference signal** The spectrum analyser shall be used to monitor the transmissions of the UUT on the selected operating channel with the interfering signal injected. This may require the spectrum analyser sweep to be triggered bythe start of the interfering signal. Using the procedure defined in clause 5.3.7.2.1.4, it shall be verified that: i) The UUT shall stop transmissions on the current operating channel being tested. NOTE 2: The UUT is assumed to stop transmissions within a period equal to the maximum Channel Occupancy Time defined in clause

	4.3.2.6.2.2 step 3. ii) Apart from Short Control Signalling Transmissions (see iii) below), there shall be no subsequent transmissions on this operating channel for a (silent) period defined in clause 4.3.2.6.2.2 step 2. After that, the UUT may have normal transmissions again for the duration of a single Channel Occupancy Time period. Because the interference signal is still present, another silent period as defined in clause 4.3.2.6.2.2 step 2 needs to be included. This sequence is repeated as long as the interfering signal is present. NOTE 3: To verify that the UUT is not resuming normal transmissions as long as the interference signal is present,the monitoring time may need to be 60 s or more. iii) The UUT may continue to have Short Control Signalling Transmissions on the operating channel while the interference signal is present. These transmissions shall comply with the limits defined in clause 4.3.2.6.4.2. NOTE 4: The verification of the Short Control Signalling transmissions may require the analyser settings to be changed (e.g. sweep time). iv) Alternatively, the equipment may switch to a non-adaptive mode. **Step 5: Adding the blocking signal** With the interfering signal present, a 100 % duty cycle CW signal is inserted as the blocking signal. The frequency and the level are provided in table 6 of clause 4.3.2.11.3. The spectrum analyser shall be used to monitor the transmissions of the UUT on the selected operating channel. This may require the spectrum analyser sweep to be triggered by the start of the blocking signal. Using the procedure defined in clause 5.3.7.2.1.4, it shall be verified that: i) The UUT shall not resume normal transmissions on the current operating channel as long as both the interference and blocking signals remain present. NOTE 5: To verify that the UUT is not resuming normal transmissions as long as the interference and blocking signals are present, the monitoring time may need to be 60 s or more. ii) The UUT may continue to have Short Control Signalling Transmissions on the operating channel while the interference and blocking signals are present. These transmissions shall comply with the limits defined in clause 4.3.2.6.4.2. NOTE 6: The verification of the Short Control Signalling transmissions may require the analyser settings to be changed (e.g. sweep time). **Step 6: Removing the interference and blocking signal** On removal of the interference and blocking signal the UUT is allowed to start transmissions again on this channel however, it shall be verified that this shall only be done after the period defined in clause 4.3.2.6.2.2 step 2. **Step 7:** The steps 2 to 6 shall be repeated for each of the frequencies to be tested. **3. LBT based adaptive equipment using modulations other than FHSS** The different steps below define the procedure to verify the efficiency of the LBT based adaptive mechanism of equipment using wide band modulations other than FHSS. This method can be applied on Load Based Equipment and Frame Based Equipment.

	Step 1: The UUT may connect to a companion device during the test. The interference signal generator, the blocking signal generator, the spectrum analyser, the UUT and the companion device are connected using a set-up equivalent to the example given by figure 5 although the interference and blocking signal generator do not generate any signals at this point in time. The spectrum analyser is used to monitor the transmissions of the UUT in response to the interfering and the blocking signals. Adjust the received signal level (wanted signal from the companion device) at the UUT to the value defined in table 6 (clause 4). NOTE 1: Testing of Unidirectional equipment does not require a link to be established with a companion device. The analyzer shall be set as follows: RBW: ≥ Occupied Channel Bandwidth (if the analyser does not support this setting, the highest available setting shall be used) VBW: 3 × RBW (if the analyser does not support this setting, the highest available setting shall be used) Detector Mode: RMS Centre Frequency: Equal to the centre frequency of the operating channel Span: 0Hz Sweep time: > maximum Channel Occupancy Time Trace Mode: Clear Write Trigger Mode: Video **Step 2:** Configure the UUT for normal transmissions with a sufficiently high payload resulting in a minimum transmitter activity ratio (TxOn / (TxOn + TxOff)) of 0,3. Where this is not possible, the UUT shall be configured to the maximum payload possible. For Frame Based Equipment, using the procedure defined in clause 5.3.7.2.1.4, it shall be verified that the UUT complies with the maximum Channel Occupancy Time and minimum Idle Period defined in clause 4.3.2.6.3.2.2 step 3). For Load Based equipment, using the procedure defined in clause 5.3.7.2.1.4, it shall be verified that the UUT complies with the maximum Channel Occupancy Time and minimum Idle Period defined in clause 4.3.2.6.3.2.3. NOTE 2: For the purpose of testing Load Based Equipment referred to in the first paragraph of clause 4.3.2.6.3.2.3 (IEEE 802.11™ [i.3] or IEEE 802.15.4™ [i.4] equipment), the limits to be applied for the minimum Idle Period and the maximum Channel Occupancy Time are the same as defined for other types of Load Based Equipment (see clause 4.3.2.6.3.2.3 step 2) and step 3). The Idle Period is considered to be equal to the CCA or Extended CCA time defined in clause 4.3.2.6.3.2.3 step 1) and step 2). **Step 3: Adding the interference signal**

	An interference signal as defined in clause B.6 is injected on the current operating channel of the UUT. The power spectral density level (at the input of the UUT) of this interference signal shall be equal to the detection threshold defined in clause 4.3.2.6.3.2.2 step 5) (frame based equipment) or clause 4.3.2.6.3.2.3 step 5) (load based equipment). **Step 4: Verification of reaction to the interference signal** The spectrum analyser shall be used to monitor the transmissions of the UUT on the selected operating channel with the interfering signal injected. This may require the spectrum analyser sweep to be triggered by the start of the interfering signal. Using the procedure defined in clause 5.3.7.2.1.4, it shall be verified that: i) The UUT shall stop transmissions on the current operating channel. NOTE 3: The UUT is assumed to stop transmissions within a period equal to the maximum Channel Occupancy Time defined in clause 4.3.2.6.3.2.2 (frame based equipment) or clause 4.3.2.6.3.2.3 (load based equipment). ii) Apart from Short Control Signalling Transmissions, there shall be no subsequent transmissions while the interfering signal is present. NOTE 4: To verify that the UUT is not resuming normal transmissions as long as the interference signal is present,the monitoring time may need to be 60 s or more. iii) The UUT may continue to have Short Control Signalling Transmissions on the operating channel while the interfering signal is present. These transmissions shall comply with the limits defined in clause 4.3.2.6.4.2. NOTE 5: The verification of the Short Control Signalling transmissions may require the analyser settings to be changed (e.g. sweep time). iv) Alternatively, the equipment may switch to a non-adaptive mode. **Step 5: Adding the blocking signal** With the interfering signal present, a 100 % duty cycle CW signal is inserted as the blocking signal. The frequency and the level are provided in table 6 of clause 4.3.2.11.3. The spectrum analyser shall be used to monitor the transmissions of the UUT on the selected operating channel. This may require the spectrum analyser sweep to be triggered by the start of the blocking signal. Using the procedure defined in clause 5.3.7.2.1.4, it shall be verified that: i) The UUT shall not resume normal transmissions on the current operating channel as long as both the interference and blocking signals remain present. NOTE 6: To verify that the UUT is not resuming normal transmissions as long as the interference and blocking signals are present, the monitoring time may need to be 60 s or more. ii) The UUT may continue to have Short Control Signalling Transmissions on the operating channel while the interfering and blocking signals are present. These transmissions shall comply with the limits defined in clause 4.3.2.6.4.2. NOTE 7: The verification of the Short Control Signalling transmissions may require the analyser settings to be changed (e.g. sweep time). **Step 6: Removing the interference and blocking signal**

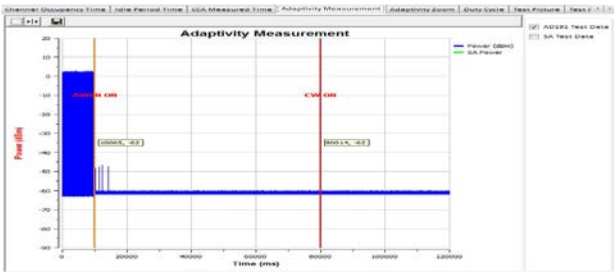
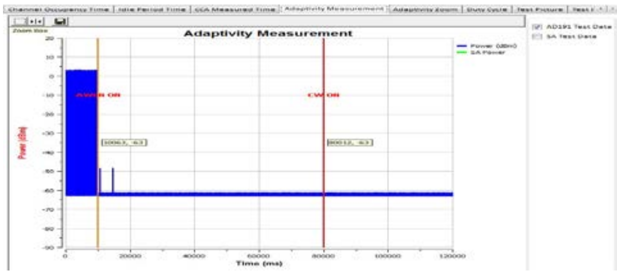
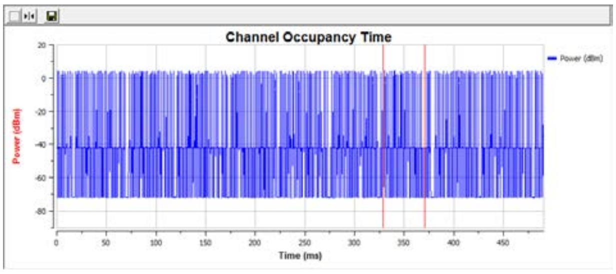
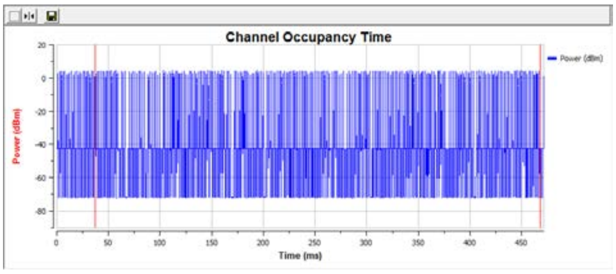
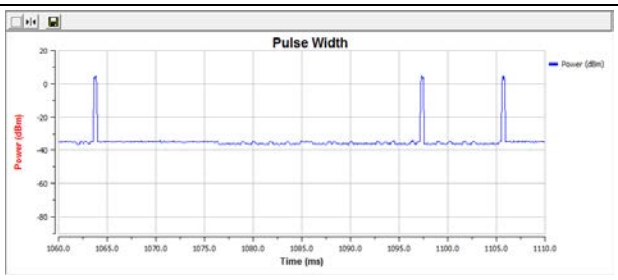
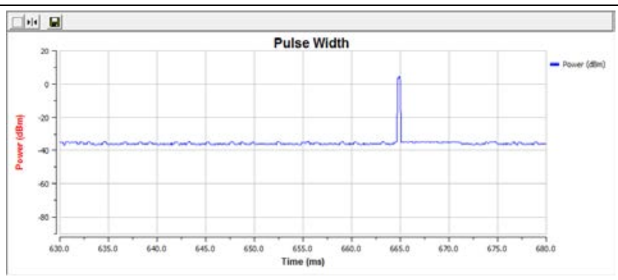
	On removal of the interference and blocking signal the UUT is allowed to start transmissions again on this channel however this is not a requirement and therefore does not require testing. **Step 7:** The steps 2 to 6 shall be repeated for each of the frequencies to be tested. **4. Generic test procedure for measuring channel/frequency usage** This is a generic test method to evaluate transmissions on the operating (hopping) frequency being investigated. This test is performed as part of the procedures described in clause 5.3.7.2.1.1 up to clause 5.3.7.2.1.3. The test procedure shall be as follows: **Step 1:** The analyzer shall be set as follows: Centre Frequency: Equal to the hopping frequency or centre frequency of the channel beinginvestigated Frequency Span: 0Hz RBW: ~ 50 % of the Occupied Channel Bandwidth (if the analyser does not support this setting, the highest available setting shall be used) VBW: ≥ RBW (if the analyser does not support this setting, the highest available setting shall be used) Detector Mode: RMS Sweep time: > the Channel Occupancy Time. It shall be noted that if the Channel Occupancy Time is non-contiguous (for non-LBT based Frequency Hopping Systems), the sweep time shall be sufficient to cover the period over which the Channel Occupancy Time is spread out Number of sweep points: see note NOTE: The time resolution has to be sufficient to meet the maximum measurement uncertainty of 5 % for the period to be measured. In most cases, the Idle Period is the shortest period to be measured and thereby defining the time resolution. If the Channel Occupancy Time is non-contiguous (non-LBT based Frequency Hopping Systems), there is no Idle Period to be measured and therefore the time resolution can be increased (e.g. to 5 % of the dwell time) to cover the period over which the Channel Occupancy Time is spread out, without resulting in too high a number of sweep points for the analyzer. EXAMPLE 1: For a Channel Occupancy Time of 60 ms, the minimum Idle Period is 3 ms, hence the minimum time resolution should be < 150 µs. EXAMPLE 2: For a Channel Occupancy Time of 2 ms, the minimum Idle Period is 100 µs, hence the minimum time resolution should be < 5 µs. EXAMPLE 3: In case of a system using the non-contiguous Channel Occupancy Time approach (40 ms) and using 79 hopping

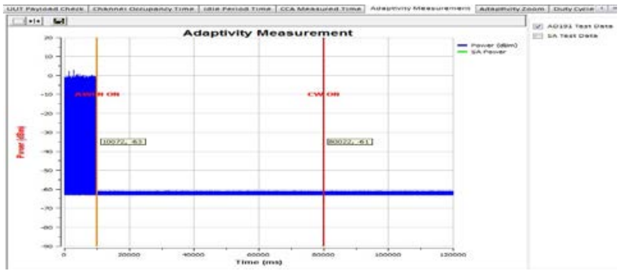
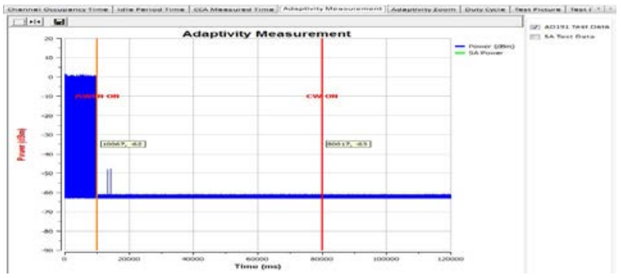
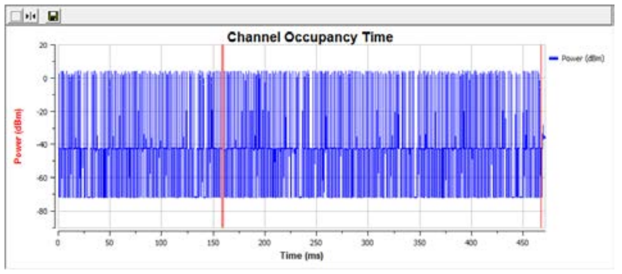
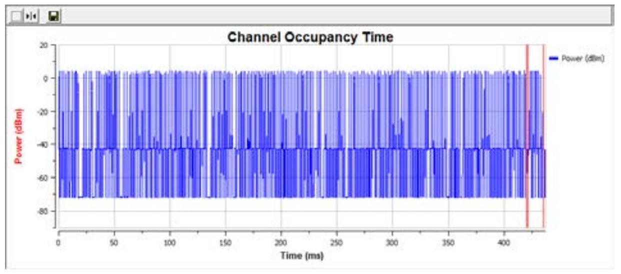
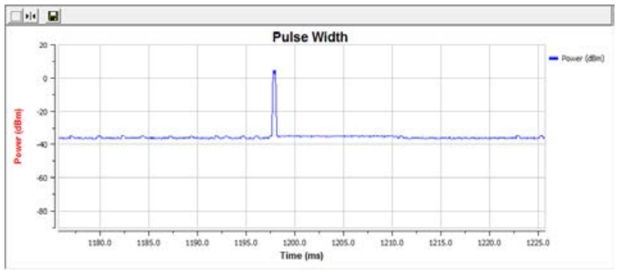
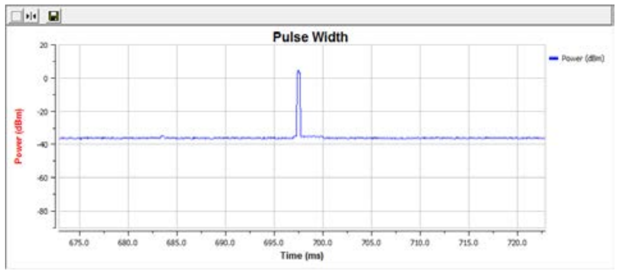
	frequencies with a dwell time of 3,75 ms, the total period over which the Channel Occupancy Time is spread out is 3,2 s. With a time resolution 0,1875 ms (5 % of the dwell time), the minimum number of sweep points is ~ 17 000. Trace mode: Clear / Write Trigger: Video In case of Frequency Hopping Equipment, the data points resulting from transmissions on the hopping frequency being investigated are assumed to have much higher levels compared to data points resulting from transmissions on adjacent hopping frequencies. If a clear determination between these transmissions is not possible, the RBW in step 1 shall be further reduced. In addition, a channel filter may be used. **Step 2:** Save the trace data to a file for further analysis by a computing device using an appropriate software application or program. **Step 3:** Indentify the data points related to the frequency being investigated by applying a threshold. Count the number of consecutive data points identified as resulting from a single transmission on the frequency being investigated and multiply this number by the time difference between two consecutive data points. Repeat this for all the transmissions within the measurement window. For measuring idle or silent periods, count the number of consecutive data points identified as resulting from a single transmitter off period on the frequency being investigated and multiply this number by the time difference between two consecutive data points. Repeat this for all the transmitter off periods within the measurement window.
Measurement Record:	Uncertainty: N/A
Test Instruments:	See section 6.0
Test mode:	Normal link mode

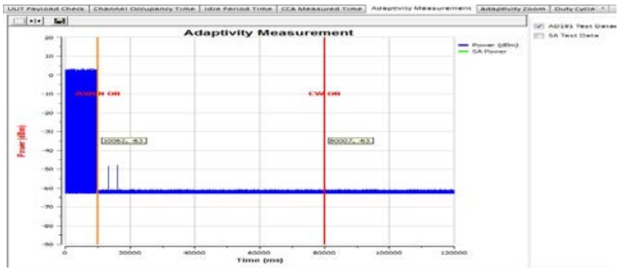
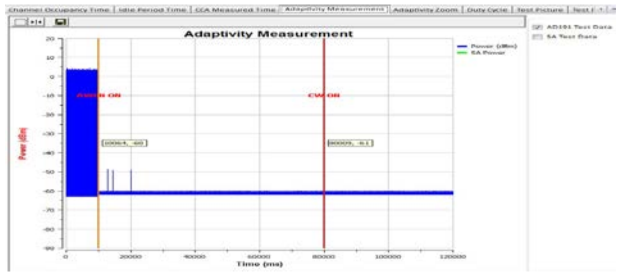
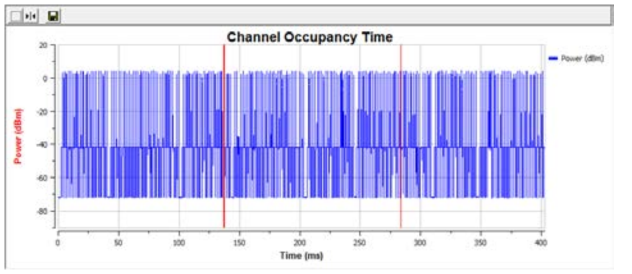
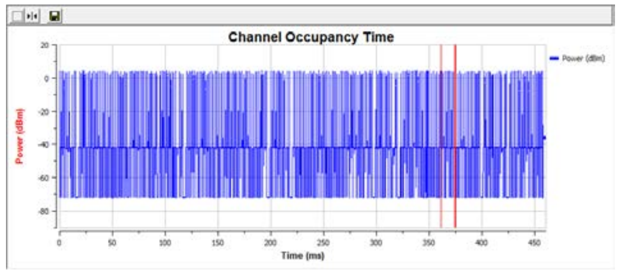
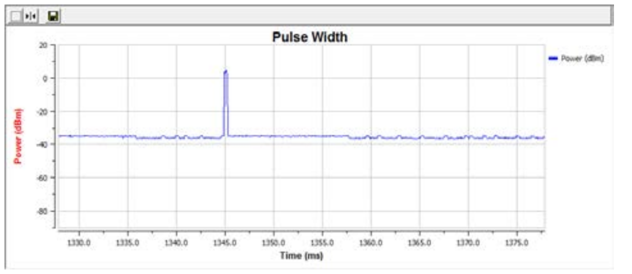
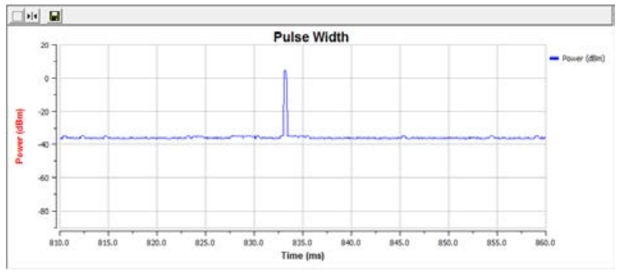
Measurement Data:

Spectrum Setting:					
RBW:	8MHz	VBW:	8MHz	Span:	0Hz
Note: The highest available setting of RBW is 8MHz.					

Test plots are below:

<table>
<tr><th colspan="2">802.11b mode lowest channel</th><th colspan="2">802.11b mode highest channel</th></tr>
<tr><td>AWGN Interference Level (dBm)</td><td>-66.42</td><td>AWGN Interference Level (dBm)</td><td>-66.29</td></tr>
<tr><td>Blocking Interference Level (dBm)</td><td>-35</td><td>Blocking Interference Level (dBm)</td><td>-35</td></tr>
<tr><td>AWGN Interference Start Time (ms)</td><td>10065.45</td><td>AWGN Interference Start Time (ms)</td><td>10063.54</td></tr>
<tr><td>Blocking Interference Start Time (ms)</td><td>80014.33</td><td>Blocking Interference Start Time (ms)</td><td>80012.51</td></tr>
<tr><td>Max COT (ms)</td><td>0.12</td><td>Max COT (ms)</td><td>0.12</td></tr>
<tr><td>Idle Time (ms)</td><td>1.02</td><td>Idle Time (ms)</td><td>1.14</td></tr>
<tr><td>Pulse width (ms)</td><td>0.36</td><td>Pulse width (ms)</td><td>0.30</td></tr>
<tr><td>Duty Cycle (%)</td><td>0.72</td><td>Duty Cycle (%)</td><td>0.60</td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
</table>

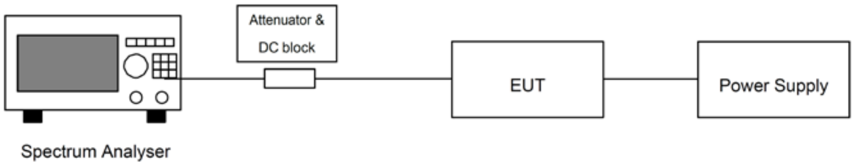
802.11g mode lowest channel		802.11g mode highest channel	
AWGN Interference Level (dBm)	-63.32	AWGN Interference Level (dBm)	-63.64
Blocking Interference Level (dBm)	-35	Blocking Interference Level (dBm)	-35
AWGN Interference Start Time (ms)	10072.47	AWGN Interference Start Time (ms)	10067.27
Blocking Interference Start Time (ms)	80022.47	Blocking Interference Start Time (ms)	80017.27
Max COT (ms)	0.12	Max COT (ms)	0.12
Idle Time (ms)	1.02	Idle Time (ms)	1.14
Pulse width (ms)	0.36	Pulse width (ms)	0.30
Duty Cycle (%)	0.72	Duty Cycle (%)	0.60
			
			
			

802.11n(HT20) mode lowest channel		802.11n(HT20) mode highest channel	
AWGN Interference Level (dBm)	-62.85	AWGN Interference Level (dBm)	-62.51
Blocking Interference Level (dBm)	-35	Blocking Interference Level (dBm)	-35
AWGN Interference Start Time (ms)	10062.36	AWGN Interference Start Time (ms)	10064.28
Blocking Interference Start Time (ms)	80007.36	Blocking Interference Start Time (ms)	80009.28
Max COT (ms)	0.18	Max COT (ms)	0.72
Idle Time (ms)	0.24	Idle Time (ms)	0.48
Pulse width (ms)	0.30	Pulse width (ms)	0.30
Duty Cycle (%)	0.60	Duty Cycle (%)	0.60
			
			
			

Note:

During the test, the signal observed on the channel being investigated is the Short Control Signalling Transmissions.

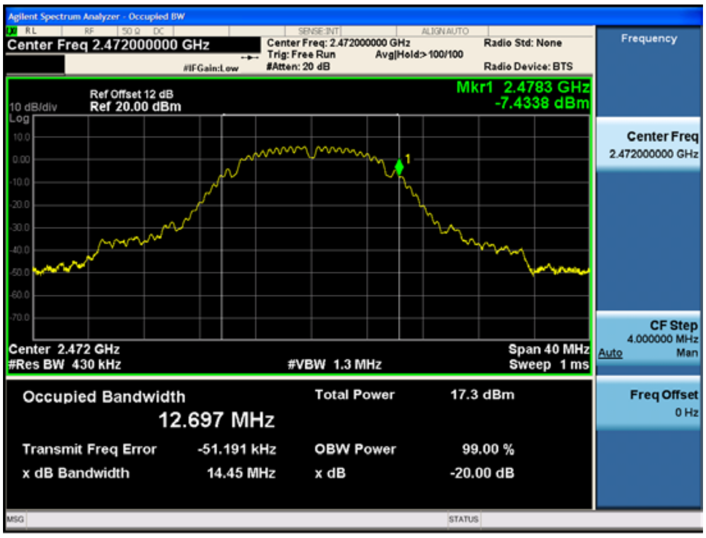
7.2.4 Occupied Channel Bandwidth

Test Requirement:	ETSI EN 300 328 clause 4.3.2.7
Limit:	The Occupied Channel Bandwidth for each hopping frequency shall fall completely within the band 2400MHz ~ 2483.5MHz. For non-adaptive Frequency Hopping equipment with e.i.r.p greater than 10 dBm, the Occupied Channel Bandwidth for every occupied hopping frequency shall be equal to or less than the value declared by the supplier. This declared value shall not be greater than 5 MHz.
Test setup:	
Test Precedure:	**Step 1:** Connect the UUT to the spectrum analyser and use the following settings: Centre Frequency: The centre frequency of the channel under test Resolution BW: ~ 1 % of the span without going below 1 % Video BW: 3 × RBW Frequency Span for frequency hopping equipment: Lowest frequency separation that is used within the hopping sequence Frequency Span for other types of equipment: 2 × Nominal Channel Bandwidth (e.g. 40 MHz for a 20 MHz channel) Detector Mode: RMS Trace mode: Max Hold Sweep time: 1 s **Step 2:** Wait for the trace to stabilize. Find the peak value of the trace and place the analyser marker on this peak. **Step 3:** Use the 99 % bandwidth function of the spectrum analyser to measure the Occupied Channel Bandwidth of the UUT. This value shall be recorded. NOTE:Make sure that the power envelope is sufficiently above the noise floor of the analyser to avoid the noise signals left and right from the power envelope being taken into account by this measurement.
Test Instruments:	See section 6.0
Test mode:	Transmitting mode

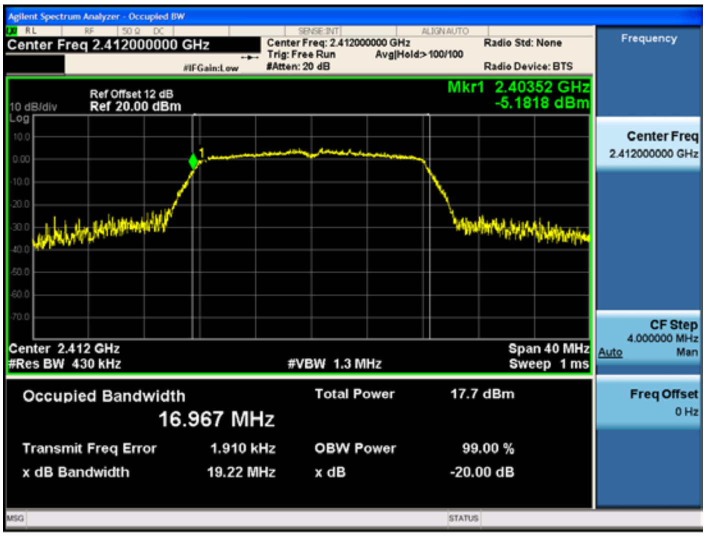
Measurement Data:

802.11b					
Test Channel	**99% Bandwidth (MHz)**	**Declared Bandwidth (MHz)**	**F_L/F_H (MHz)**	**Limit**	**Result**
Lowest	12.835	20	2405.57	2400MHz ~ 2483.5MHz	Pass
Highest	12.697	20	2478.30		Pass
802.11g					
Test Channel	**99% Bandwidth (MHz)**	**Declared Bandwidth (MHz)**	**F_L/F_H (MHz)**	**Limit**	**Result**
Lowest	16.967	20	2403.52	2400MHz ~ 2483.5MHz	Pass
Highest	17.023	20	2480.47		Pass
802.11n(H20)					
Test Channel	**99% Bandwidth (MHz)**	**Declared Bandwidth (MHz)**	**F_L/F_H (MHz)**	**Limit**	**Result**
Lowest	17.838	20	2403.09	2400MHz ~ 2483.5MHz	Pass
Highest	17.870	20	2483.50		Pass

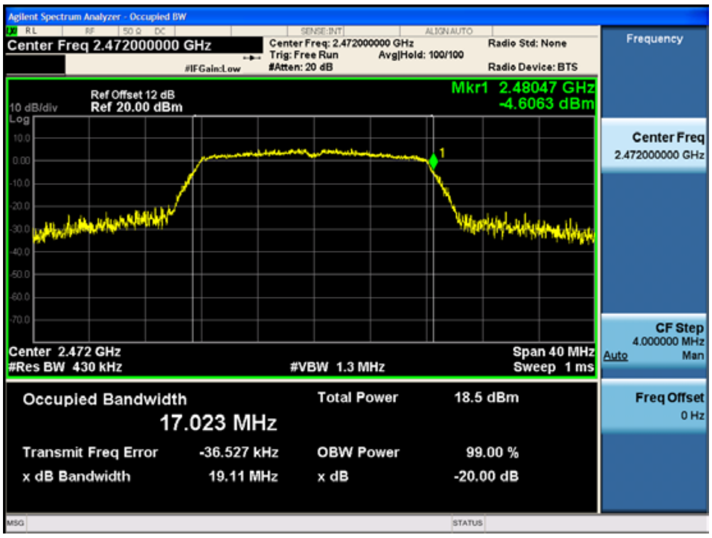
Test plots are followed:

Mode:	802.11b	Channel:	Lowest
			
Mode:	802.11b	Channel:	Highest
			

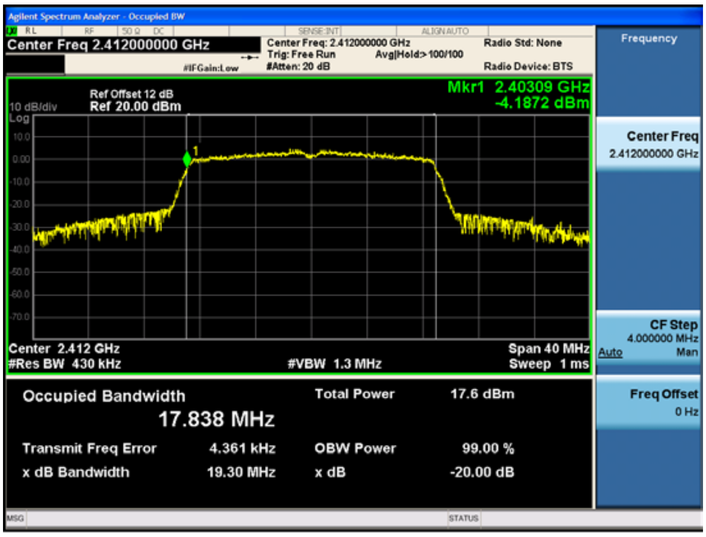
Mode:	802.11g	Channel:	Lowest



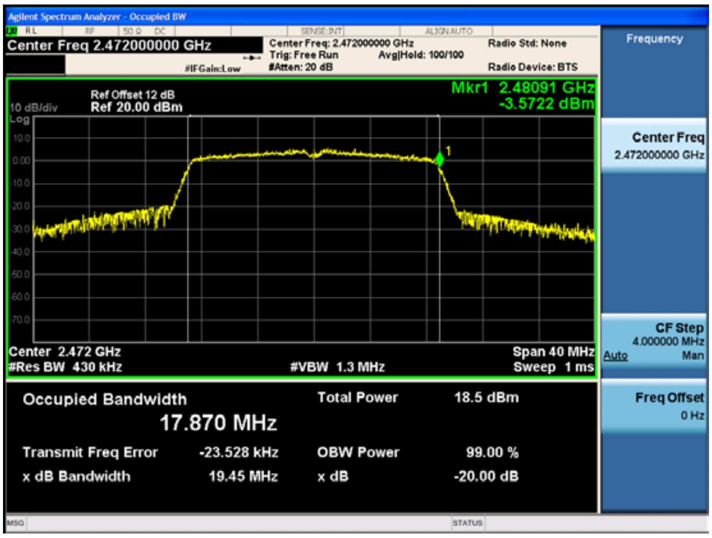
Mode:	802.11g	Channel:	Highest



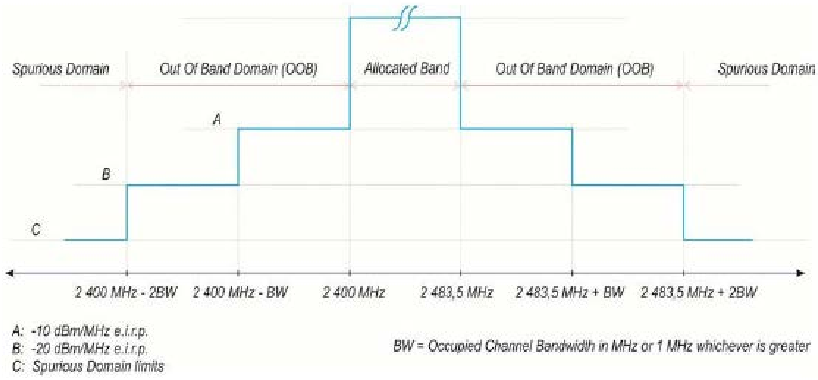
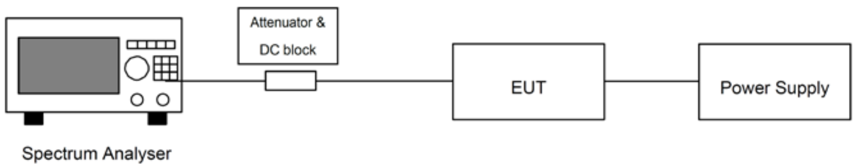
Mode:	802.11n(HT20)	Channel:	Lowest



Mode:	802.11n(HT20)	Channel:	Highest



7.2.5 Transmitter unwanted emissions in the OOB domain

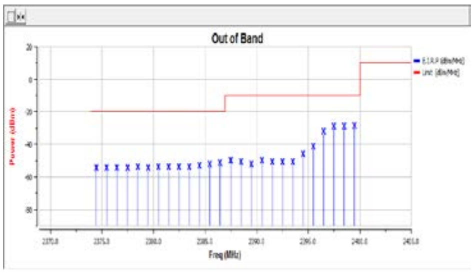
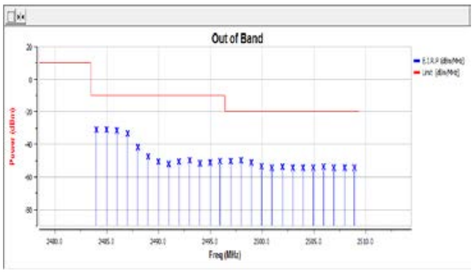
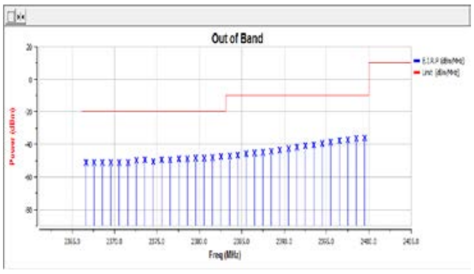
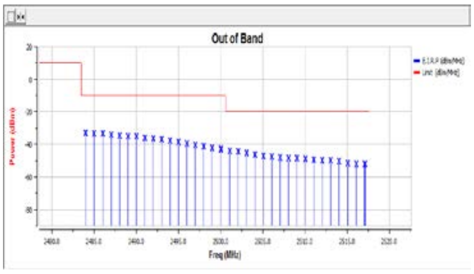
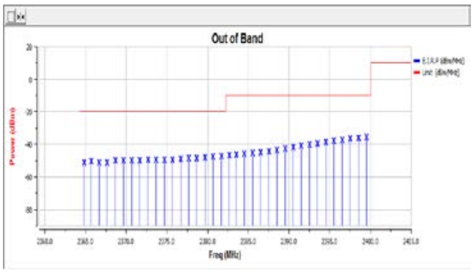
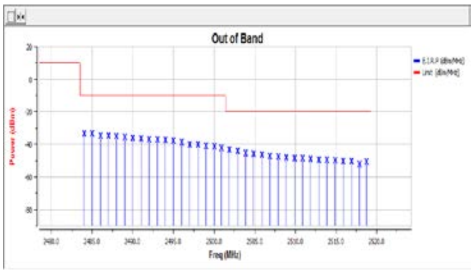
Test Requirement:	ETSI EN 300 328 clause 4.3.2.8
Test Method:	ETSI EN 300 328 clause 5.3.9.2
Limit:	The transmitter unwanted emissions in the out-of-band domain but outside the allocated band, shall not exceed the values provided by the mask in figure 3.  **Figure 3: Transmit mask**
Test setup:	
Test procedure:	The applicable mask is defined by the measurement results from the tests performed under clause 5.3.8 (Occupied Channel Bandwidth). The Out-of-band emissions within the different horizontal segments of the mask provided in figures 1 and 3 shall be measured using the steps below. This method assumes the spectrum analyser is equipped with the Time Domain Power option. **Step 1:** Connect the UUT to the spectrum analyser and use the following settings: Centre Frequency: 2 484 MHz Span: Hz Resolution BW: 1 MHz Filter mode: Channel filter Video BW: 3 MHz Detector Mode: RMS Trace Mode: Max Hold Sweep Mode: Continuous Sweep Points: Sweep Time [s] / (1 μs) or 5 000 whichever is greater Trigger Mode: Video trigger NOTE 1: In case video triggering is not possible, an external trigger

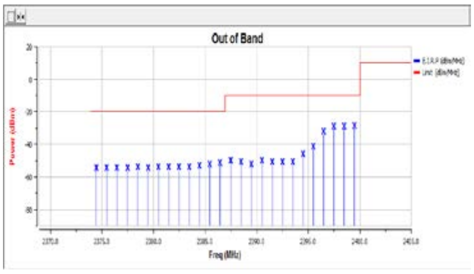
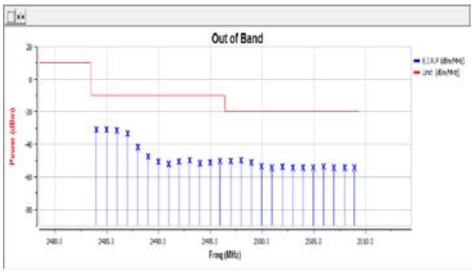
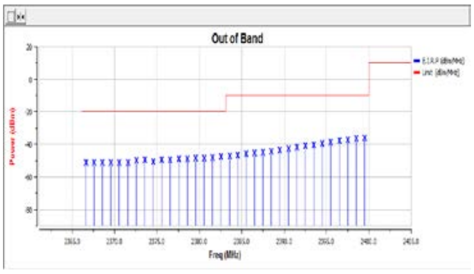
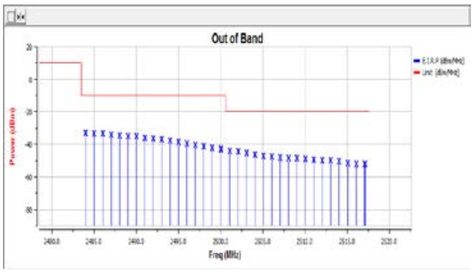
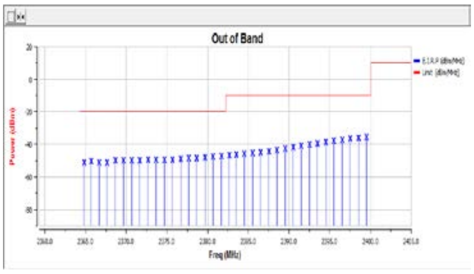
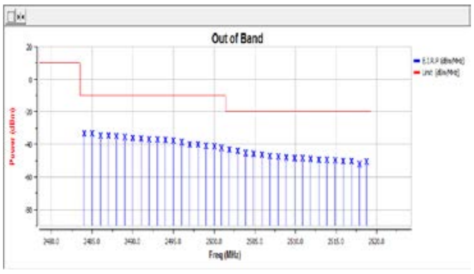
	source may be used. Sweep Time: >120 % of the duration of the longest burst detected during the measurement of the RF Output Power **Step 2: (segment 2 483,5 MHz to 2 483,5 MHz + BW)** Adjust the trigger level to select the transmissions with the highest power level. For frequency hopping equipment operating in a normal hopping mode, the different hops will result in signal bursts with different power levels. In this case the burst with the highest power level shall be selected. Set a window (start and stop lines) to match with the start and end of the burst and in which the RMS power shall be measured using the Time Domain Power function. Select RMS power to be measured within the selected window and note the result which is the RMS power within this 1 MHz segment (2 483,5 MHz to 2 484,5 MHz). Compare this value with the applicable limit provided by the mask. Increase the centre frequency in steps of 1 MHz and repeat this measurement for every 1 MHz segment within the range 2 483,5 MHz to 2 483,5 MHz + BW. The centre frequency of the last 1 MHz segment shall be set to 2 483,5 MHz + BW - 0,5 MHz (which means this may partly overlap with the previous 1 MHz segment). **Step 3: (segment 2 483,5 MHz + BW to 2 483,5 MHz + 2BW)** Change the centre frequency of the analyser to 2 484 MHz + BW and perform the measurement for the first 1 MHz segment within range 2 483,5 MHz + BW to 2 483,5 MHz + 2BW. Increase the centre frequency in 1 MHz steps and repeat the measurements to cover this whole range. The centre frequency of the last 1 MHz segment shall be set to 2 483,5 MHz + 2 BW - 0,5 MHz. (which means this may partly overlap with the previous 1 MHz segment). **Step 4: (segment 2 400 MHz - BW to 2 400 MHz)** Change the centre frequency of the analyser to 2 399,5 MHz and perform the measurement for the first 1 MHz segment within range 2 400 MHz - BW to 2 400 MHz Reduce the centre frequency in 1 MHz steps and repeat the measurements to cover this whole range. The centre frequency of the last 1 MHz segment shall be set to 2 400 MHz - BW + 0,5 MHz (which means this may partly overlap with the previous 1 MHz segment). **Step 5: (segment 2 400 MHz - 2BW to 2 400 MHz - BW)** Change the centre frequency of the analyser to 2 399,5 MHz - BW and perform the measurement for the first 1 MHz segment within range 2 400 MHz - 2BW to 2 400 MHz - BW. Reduce the centre frequency in 1 MHz steps and repeat the measurements to cover this whole range. The centre frequency of the last 1 MHz segment shall be set to 2 400 MHz - 2BW + 0,5 MHz. (which means this may partly overlap with the previous 1 MHz segment). **Step 6:** In case of conducted measurements on equipment with a single transmit chain, the declared antenna assembly gain "G" in dBi shall be added to the results for each of the 1 MHz segments and compared with the limits

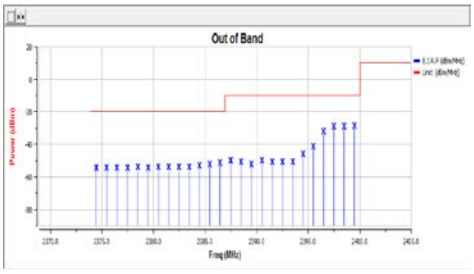
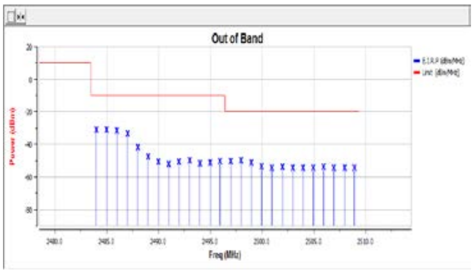
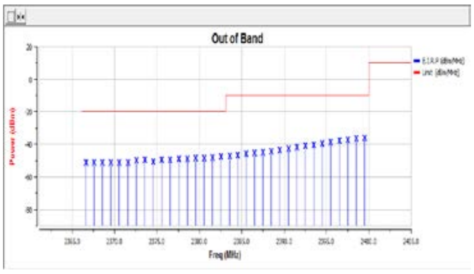
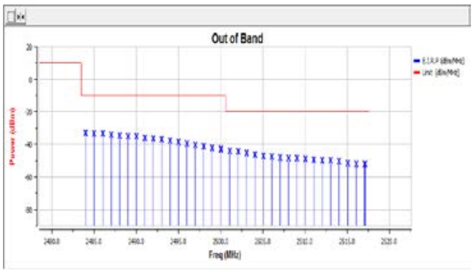
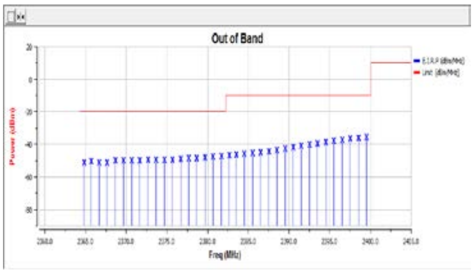
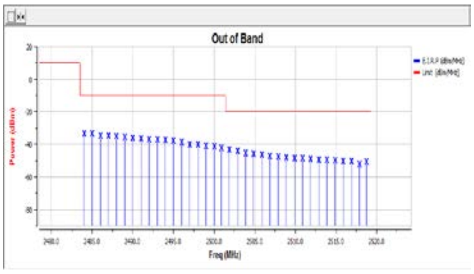
	provided by the mask given in figures 1 or 3. If more than one antenna assembly is intended for this power setting, the antenna with the highest gain shall be considered. In case of conducted measurements on smart antenna systems (equipment with multiple transmit chains), the measurements need to be repeated for each of the active transmit chains. The declared antenna assembly gain "G" in dBi for a single antenna shall be added to these results. If more than one antenna assembly is intended for this power setting, the antenna with the highest gain shall be considered. Comparison with the applicable limits shall be done using any of the options given below: Option 1: the results for each of the transmit chains for the corresponding 1 MHz segments shall be added. The additional beamforming gain "Y" in dB shall be added as well and the resulting values compared with the limits provided by the mask given in figure 1 or figure 3. Option 2: the limits provided by the mask given in figure 1 or figure 3 shall be reduced by 10 x log10(Ach) and the additional beamforming gain "Y" in dB. The results for each of the transmit chains shall be individually compared with these reduced limits. NOTE 2: Ach refers to the number of active transmit chains. It shall be recorded whether the equipment complies with the mask provided in figure 1 or figure 3.
Measurement Record:	Uncertainty: ± 1.5dB
Test Instruments:	See section 6.0
Test mode:	Transmitting mode

Measurement Data:

Test plots at normal condition are followed:

Test Condition:				Normal condition			
Mode:	802.11b	Channel:	Lowest	Mode:	802.11b	Channel:	Highest
							
Mode:	802.11g	Channel:	Lowest	Mode:	802.11g	Channel:	Highest
							
Mode:	802.11n(HT20)	Channel:	Lowest	Mode:	802.11n(HT20)	Channel:	Highest
							

Test Condition:				NVLT			
Mode:	802.11b	Channel:	Lowest	Mode:	802.11b	Channel:	Highest
							
Mode:	802.11g	Channel:	Lowest	Mode:	802.11g	Channel:	Highest
							
Mode:	802.11n(HT20)	Channel:	Lowest	Mode:	802.11n(HT20)	Channel:	Highest
							

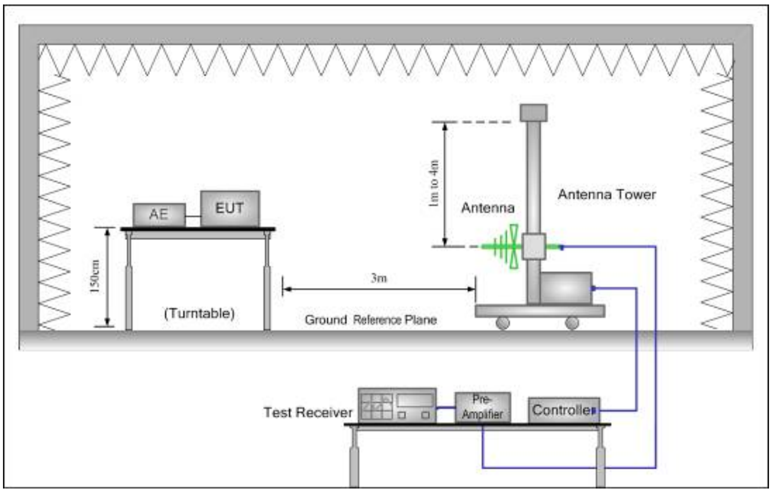
Test Condition:				NVHT			
Mode:	802.11b	Channel:	Lowest	Mode:	802.11b	Channel:	Highest
							
Mode:	802.11g	Channel:	Lowest	Mode:	802.11g	Channel:	Highest
							
Mode:	802.11n(HT20)	Channel:	Lowest	Mode:	802.11n(HT20)	Channel:	Highest
							

7.2.6 Transmitter unwanted emissions in the spurious domain

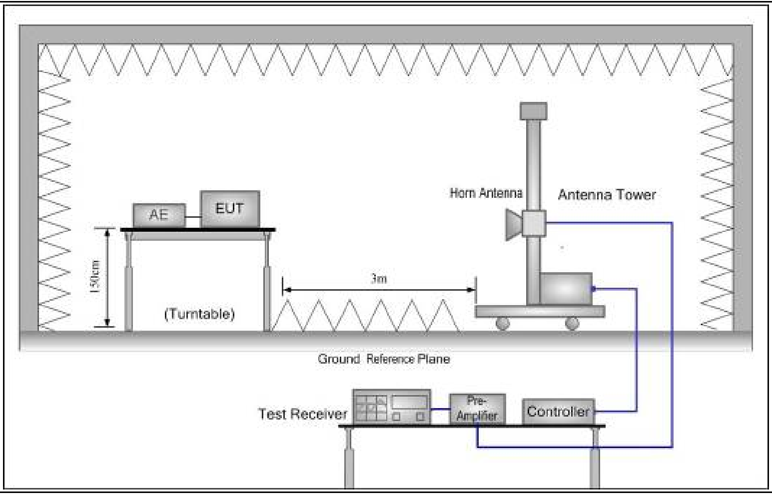
Test Requirement:	ETSI EN 300 328 clause 4.3.2.9
Test Method:	ETSI EN 300 328 clause 5.3.10.2
Limit:	see table below
Test Frequency range:	30MHz to 12.75GHz
Test setup:	Below 1GHz

Frequency Range	Maximum power e.r.p. (≤ 1 GHz) e.i.r.p. (> 1 GHz)	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 kHz
47 MHz to 74 MHz	-54 dBm	100 kHz
74 MHz to 87.5 MHz	-36 dBm	100 kHz
87.5 MHz to 118 MHz	-54 dBm	100 kHz
118 MHz to 174 MHz	-36 dBm	100 kHz
174 MHz to 230 MHz	-54 dBm	100 kHz
230 MHz to 470 MHz	-36 dBm	100 kHz
470 MHz to 862 MHz	-54 dBm	100 kHz
862 MHz to 1 GHz	-36 dBm	100 kHz
1 GHz to 12.75 GHz	-30 dBm	1 MHz

Below 1GHz



Above 1GHz

<table>
<tr><td></td><td>
</td></tr>
<tr><td>Test procedure:</td><td>

1. Pre-scan

The test procedure below shall be used to identify potential unwanted emissions of the UUT.

Step 1:

The sensitivity of the spectrum analyser should be such that the noise floor is at least 12 dB below the limits given in tables 1 or 4.

Step 2:

The emissions over the range 30 MHz to 1 000 MHz shall be identified.
Spectrum analyser settings:

Resolution BW: 100 kHz
Video BW 300 kHz
Filter type: 3 dB (Gaussian)
Detector mode: Peak
Trace Mode: Max Hold
Sweep Points: ≥19 400

NOTE 1: For spectrum analysers not supporting this high number of sweep points, the frequency band may need to be segmented.

Sweep time: For non continuous transmissions (duty cycle less than 100 %), the sweep time shall be sufficiently long, such that for each 100 kHz frequency step, the measurement time is greater than two transmissions of the UUT.

For Frequency Hopping equipment operating in a normal operating (hopping not disabled) mode, the sweep time shall be further increased to capture multiple transmissions on the same hopping frequency in different hopping sequences.

NOTE 2: The above sweep time setting may result in long measuring times in case of frequency hopping equipment. To avoid such long measuring times, an FFT analyser could be used.

Allow the trace to stabilize. Any emissions identified during the sweeps above and that fall within the 6 dB range below the applicable limit or above, shall be individually measured using the procedure in clause 5.3.10.2.1.3 and compared to the limits given in table 1 or table 4.
</td></tr>
</table>

	Step 3: The emissions over the range 1 GHz to 12,75 GHz shall be identified. Spectrum analyser settings: Resolution BW: 1 MHz Video BW 3 MHz Filter type: 3 dB (Gaussian) Detector mode: Peak Trace Mode: Max Hold Sweep Points: ≥ 23 500 NOTE 3: For spectrum analysers not supporting this high number of sweep points, the frequency band may need to be segmented. Sweep time: For non continuous transmissions (duty cycle less than 100 %), the sweep time shall be sufficiently long, such that for each 1 MHz frequency step, the measurement time is greater than two transmissions of the UUT. For Frequency Hopping equipment operating in a normal operating (hopping not disabled) mode, the sweep time shall be further increased to capture multiple transmissions on the same hopping frequency in different hopping sequences. NOTE 4: The above sweep time setting may result in long measuring times in case of frequency hopping equipment. To avoid such long measuring times, an FFT analyser could be used. Allow the trace to stabilize. Any emissions identified during the sweeps above that fall within the 6 dB range below the applicable limit or above, shall be individually measured using the procedure in clause 5.3.10.2.1.3 and compared to the limits given in table 1 or table 4. Frequency Hopping equipment may generate a block (or several blocks) of spurious emissions anywhere within the spurious domain. If this is the case, only the highest peak of each block of emissions shall be measured using the procedure in clause 5.3.10.2.1.3. **Step 4:** In case of conducted measurements on smart antenna systems (equipment with multiple transmit chains), the steps 2 and 3 need to be repeated for each of the active transmit chains (Ach).The limits used to identify emissions during this pre-scan need to be reduced with 10 × log10 (Ach) (number of active transmit chains). **2. Measurement of the emissions identified during the pre-scan** The steps below shall be used to accurately measure the individual unwanted emissions identified during the pre-scan measurements above. This method assumes the spectrum analyser has a Time Domain Power function. **Step 1:** The level of the emissions shall be measured using the following spectrum analyser settings: Measurement Mode: Time Domain Power

	Centre Frequency: Frequency of emission identified during the pre-scan Resolution BW: 100 kHz (< 1 GHz) / 1 MHz (> 1 GHz) Video BW 300 kHz (< 1 GHz) / 3 MHz (> 1 GHz) Frequency Span: Zero Span Sweep mode: Single Sweep Sweep time: 30 ms Sweep points: >=30 000 Trigger: Video (burst signals) or Manual (continuous signals) Detector: RMS **Step 2:** Set a window where the start and stop indicators match the start and end of the burst with the highest level and record the value of the power measured within this window.If the spurious emission to be measured is a continuous transmission, the measurement window shall be set to match the start and stop times of the sweep. **Step 3:** In case of conducted measurements on smart antenna systems (equipment with multiple transmit chains), step 2 needs to be repeated for each of the active transmit chains (Ach). Sum the measured power (within the observed window) for each of the active transmit chains. **Step 4:** The measured values shall be compared to the limits defined in tables 1 and 4.
Measurement Record:	Uncertainty: ± 6dB
Test Instruments:	See section 6.0
Test mode:	Transmitting mode

Measurement Data

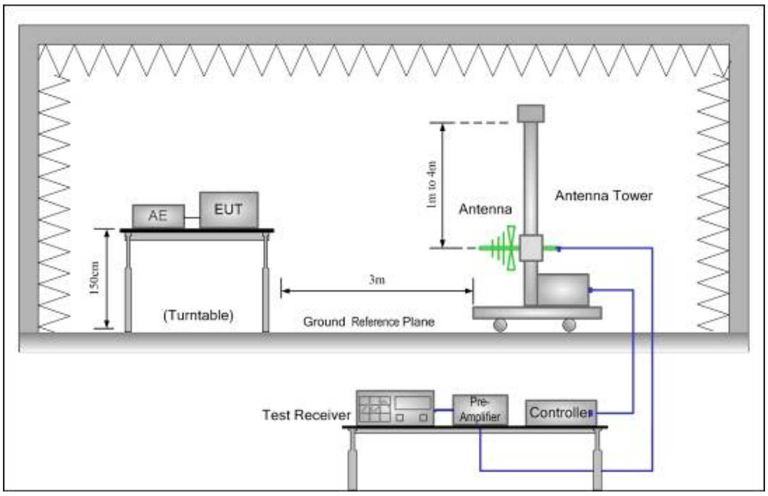
802.11b mode				
The lowest channel				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
90.67	Vertical	-70.33	-54.00	Pass
396.41	V	-66.70	-36.00	
4824.00	V	-42.51	-30.00	
7236.00	V	-45.28	-30.00	
9648.00	V	-41.86	-30.00	
12060.00	V	-42.80	-30.00	
173.69	Horizontal	-69.11	-36.00	
593.43	H	-64.66	-54.00	
4824.00	H	-44.80	-30.00	
7236.00	H	-45.38	-30.00	
9648.00	H	-42.08	-30.00	
12060.00	H	-44.11	-30.00	
The highest channel				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
138.80	Vertical	-71.77	-36.00	Pass
562.51	V	-63.02	-54.00	
4944.00	V	-43.02	-30.00	
7416.00	V	-44.75	-30.00	
9888.00	V	-43.54	-30.00	
12360.00	V	-42.92	-30.00	
252.57	Horizontal	-69.17	-36.00	
773.44	H	-62.15	-54.00	
4944.00	H	-44.16	-30.00	
7416.00	H	-45.16	-30.00	
9888.00	H	-43.25	-30.00	
12360.00	H	-43.56	-30.00	

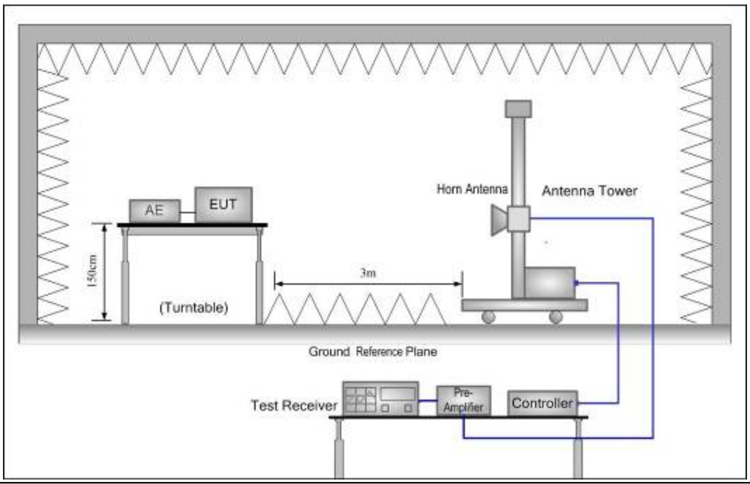
802.11g mode				
The lowest channel				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
96.37	Vertical	-71.26	-54.00	Pass
314.05	V	-67.91	-36.00	
4824.00	V	-51.99	-30.00	
7236.00	V	-45.51	-30.00	
9648.00	V	-42.29	-30.00	
12060.00	V	-44.38	-30.00	
123.61	Horizontal	-69.28	-36.00	
651.38	H	-68.58	-54.00	
4824.00	H	-51.03	-30.00	
7236.00	H	-44.92	-30.00	
9648.00	H	-42.42	-30.00	
12060.00	H	-45.15	-30.00	
The highest channel				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
152.26	Vertical	-70.40	-36.00	Pass
917.31	V	-62.87	-36.00	
4944.00	V	-51.71	-30.00	
7416.00	V	-44.87	-30.00	
9888.00	V	-42.89	-30.00	
12360.00	V	-42.90	-30.00	
122.91	Horizontal	-69.67	-36.00	
732.35	H	-71.49	-54.00	
4944.00	H	-50.95	-30.00	
7416.00	H	-45.35	-30.00	
9888.00	H	-41.97	-30.00	
12360.00	H	-41.81	-30.00	

802.11n(HT20) mode				
The lowest channel				
Frequency (MHz)	**Spurious Emission**		**Limit (dBm)**	**Test Result**
	polarization	**Level(dBm)**		
192.37	Vertical	-69.67	-54.00	Pass
711.85	V	-64.07	-54.00	
4824.00	V	-52.39	-30.00	
7236.00	V	-45.09	-30.00	
9648.00	V	-43.39	-30.00	
12060.00	V	-43.21	-30.00	
201.32	Horizontal	-69.91	-54.00	
665.28	H	-62.14	-54.00	
4824.00	H	-52.34	-30.00	
7236.00	H	-45.99	-30.00	
9648.00	H	-43.30	-30.00	
12060.00	H	-44.75	-30.00	
The highest channel				
Frequency (MHz)	**Spurious Emission**		**Limit (dBm)**	**Test Result**
	polarization	**Level(dBm)**		
282.26	Vertical	-69.04	-36.00	Pass
859.06	V	-65.78	-54.00	
4944.00	V	-51.90	-30.00	
7416.00	V	-44.11	-30.00	
9888.00	V	-42.99	-30.00	
12360.00	V	-43.81	-30.00	
142.77	Horizontal	-71.89	-36.00	
840.01	H	-71.27	-54.00	
4944.00	H	-50.56	-30.00	
7416.00	H	-46.51	-30.00	
9888.00	H	-42.99	-30.00	
12360.00	H	-45.29	-30.00	

7.3 Receiver Requirement

7.3.1 Spurious Emissions

<table>
<tr><td>Test Requirement:</td><td>ETSI EN 300 328 clause 4.3.2.10</td></tr>
<tr><td>Test Method:</td><td>ETSI EN 300 328 clause 5.3.11.2</td></tr>
<tr><td>Limit:</td><td><table>
<tr><th>Frequency</th><th>Maximum power
e.r.p. (≤ 1 GHz)
e.i.r.p. (> 1 GHz)</th><th>Measurement bandwidth</th></tr>
<tr><td>30MHz to 1000 MHz</td><td>-57 dBm</td><td>100 kHz</td></tr>
<tr><td>1GHz to 12.75GHz</td><td>-47 dBm</td><td>1 MHz</td></tr>
</table></td></tr>
<tr><td>Test Frequency range:</td><td>30MHz to 12.75GHz</td></tr>
<tr><td>Test setup:</td><td>Below 1GHz


Above 1GHz

</td></tr>
</table>

Test procedure:	**1. Pre-scan** The test procedure below shall be used to identify potential unwanted emissions of the UUT. **Step 1:** The sensitivity of the spectrum analyser should be such that the noise floor is at least 12 dB below the limits given in tables 2 or 5. **Step 2:** The emissions over the range 30 MHz to 1 000 MHz shall be identified. Spectrum analyser settings: Resolution BW: 100 kHz Video BW 300 kHz Filter type: 3dB (Gaussian) Detector mode: Peak Trace Mode: Max Hold Sweep Points: ≥ 19 400 Sweep time: Auto Allow the trace to stabilize. Any emissions identified during the sweeps above and that fall within the 6 dB range below the applicable limit or above, shall be individually measured using the procedure in clause 5.3.11.2.1.2 and compared to the limits given in tables 2 or 5. **Step 3:** The emissions over the range 1 GHz to 12,75 GHz shall be identified. Spectrum analyser settings: Resolution BW: 1 MHz Video BW 3 MHz Filter type: 3 dB (Gaussian) Detector mode: Peak Trace Mode: Max Hold Sweep Points: ≥ 23 500 Sweep time: Auto Allow the trace to stabilize. Any emissions identified during the sweeps above that fall within the 6 dB range below the applicable limit or above, shall be individually measured using the procedure in clause 5.3.11.2.1.2 and compared to the limits given in tables 2 or 5. Frequency Hopping equipment may generate a block (or several blocks) of spurious emissions anywhere within the spurious domain. If this is the case, only the highest peak of each block of emissions shall be measured using the procedure in clause 5.3.11.2.1.2. **Step 4:** In case of conducted measurements on smart antenna systems (equipment with multiple transmit chains), the steps 2 and 3 need to be repeated for each of the active transmit chains (Ach).The limits used to identifyemissions during this pre-scan need to be reduced with 10 × log10 (Ach) (number of active transmit chains).

	2. Measurement of the emissions identified during the pre-scan The steps below shall be used to accurately measure the individual unwanted emissions identified during the pre-scan measurements above. **Step 1:** The level of the emissions shall be measured using the following spectrum analyser settings: Centre Frequency: Frequency of emission identified during the pre-scan Resolution BW: 100 kHz (< 1 GHz) / 1 MHz (> 1 GHz) Video BW 300 kHz (< 1 GHz) / 3 MHz (> 1 GHz) Frequency Span: Zero Span Sweep mode: Single Sweep Sweep time: 30 ms Sweep points: >=30 000 Trigger: Video (for burst signals) or Manual (for continuous signals) Detector: RMS **Step 2:** In case of conducted measurements on smart antenna systems (equipment with multiple transmit chains), the step 1 needs to be repeated for each of the active transmit chains (Ach). The trace data for each transmit chain has to be recorded. Sum the power in each of the traces for each individual frequency bin. **Step 3:** Use the marker function to find the highest peak within the measurement trace and record its value and its frequency. **Step 4:** The measured values shall be compared to the limits defined in tables 2 and 5.
Measurement Record:	Uncertainty: ± 6dB
Test mode:	Kept Rx in receiving mode
Test Instruments:	See section 6.0

Measurement Data:

802.11b mode				
The lowest channel				
Frequency (MHz)	**Spurious Emission**		**Limit (dBm)**	**Test Result**
	polarization	**Level(dBm)**		
126.33	Vertical	-71.39	2nW/ -57dBm below 1GHz, 20nW/ -47dBm above 1GHz.	Pass
713.91	V	-65.35		
4824.00	V	-64.51		
7236.00	V	-57.74		
9648.00	V	-54.26		
12060.00	V	-53.70		
238.69	Horizontal	-71.13		
442.95	H	-64.26		
4824.00	H	-61.44		
7236.00	H	-58.13		
9648.00	H	-55.38		
12060.00	H	-53.91		
The highest channel				
Frequency (MHz)	**Spurious Emission**		**Limit (dBm)**	**Test Result**
	polarization	**Level(dBm)**		
107.56	Vertical	-71.98	2nW/ -57dBm below 1GHz, 20nW/ -47dBm above 1GHz.	Pass
553.61	V	-65.14		
4944.00	V	-62.76		
7416.00	V	-58.00		
9888.00	V	-54.28		
12360.00	V	-52.79		
185.78	Horizontal	-70.02		
477.63	H	-63.63		
4944.00	H	-62.11		
7416.00	H	-55.38		
9888.00	H	-52.30		
12360.00	H	-52.04		

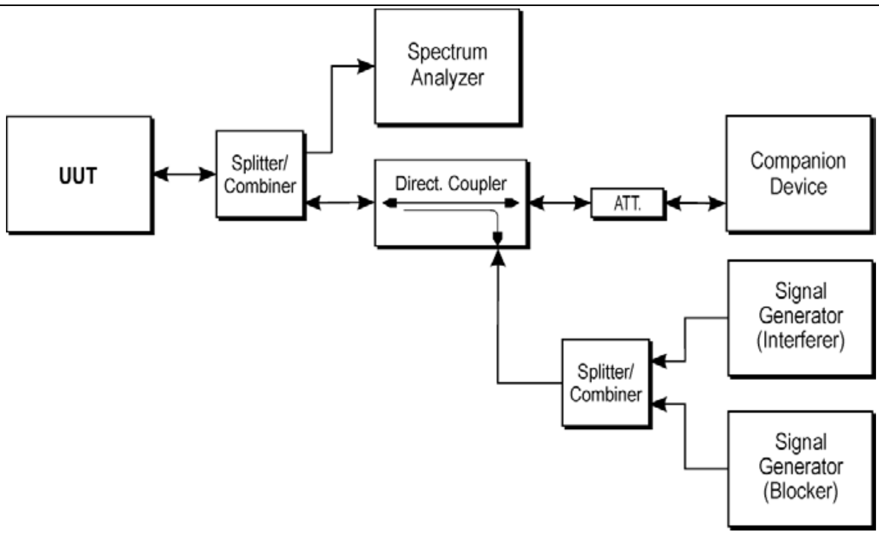
<table>
<tr><th colspan="5">802.11g mode</th></tr>
<tr><th colspan="5">The lowest channel</th></tr>
<tr><th rowspan="2">Frequency (MHz)</th><th colspan="2">Spurious Emission</th><th rowspan="2">Limit (dBm)</th><th rowspan="2">Test Result</th></tr>
<tr><th>polarization</th><th>Level(dBm)</th></tr>
<tr><td>115.92</td><td>Vertical</td><td>-70.42</td><td rowspan="12">2nW/ -57dBm
below 1GHz,

20nW/ -47dBm
above 1GHz.</td><td rowspan="12">Pass</td></tr>
<tr><td>569.65</td><td>V</td><td>-66.38</td></tr>
<tr><td>4944.00</td><td>V</td><td>-62.81</td></tr>
<tr><td>7416.00</td><td>V</td><td>-57.94</td></tr>
<tr><td>9888.00</td><td>V</td><td>-53.72</td></tr>
<tr><td>12360.00</td><td>V</td><td>-53.04</td></tr>
<tr><td>131.87</td><td>Horizontal</td><td>-70.05</td></tr>
<tr><td>514.14</td><td>H</td><td>-66.19</td></tr>
<tr><td>4944.00</td><td>H</td><td>-61.58</td></tr>
<tr><td>7416.00</td><td>H</td><td>-55.37</td></tr>
<tr><td>9888.00</td><td>H</td><td>-53.66</td></tr>
<tr><td>12360.00</td><td>H</td><td>-52.45</td></tr>
<tr><th colspan="5">The highest channel</th></tr>
<tr><th rowspan="2">Frequency (MHz)</th><th colspan="2">Spurious Emission</th><th rowspan="2">Limit (dBm)</th><th rowspan="2">Test Result</th></tr>
<tr><th>polarization</th><th>Level(dBm)</th></tr>
<tr><td>152.59</td><td>Vertical</td><td>-71.83</td><td rowspan="12">2nW/ -57dBm
below 1GHz,

20nW/ -47dBm
above 1GHz.</td><td rowspan="12">Pass</td></tr>
<tr><td>592.63</td><td>V</td><td>-72.52</td></tr>
<tr><td>4944.00</td><td>V</td><td>-62.14</td></tr>
<tr><td>7416.00</td><td>V</td><td>-57.20</td></tr>
<tr><td>9888.00</td><td>V</td><td>-53.28</td></tr>
<tr><td>12360.00</td><td>V</td><td>-52.68</td></tr>
<tr><td>160.75</td><td>Horizontal</td><td>-71.29</td></tr>
<tr><td>686.06</td><td>H</td><td>-67.60</td></tr>
<tr><td>4944.00</td><td>H</td><td>-61.42</td></tr>
<tr><td>7416.00</td><td>H</td><td>-56.80</td></tr>
<tr><td>9888.00</td><td>H</td><td>-54.19</td></tr>
<tr><td>12360.00</td><td>H</td><td>-52.06</td></tr>
</table>

802.11n(HT20) mode				
The lowest channel				
Frequency (MHz)	**Spurious Emission**		**Limit (dBm)**	**Test Result**
	polarization	**Level(dBm)**		
136.41	Vertical	-70.72	2nW/ -57dBm below 1GHz, 20nW/ -47dBm above 1GHz.	Pass
526.95	V	-68.84		
4824.00	V	-55.99		
7236.00	V	-60.30		
9648.00	V	-57.78		
12060.00	V	-55.43		
142.08	Horizontal	-70.81		
672.37	H	-63.35		
4824.00	H	-55.39		
7236.00	H	-60.85		
9648.00	H	-58.36		
12060.00	H	-54.52		
The highest channel				
Frequency (MHz)	**Spurious Emission**		**Limit (dBm)**	**Test Result**
	polarization	**Level(dBm)**		
136.41	Vertical	-70.72	2nW/ -57dBm below 1GHz, 20nW/ -47dBm above 1GHz.	Pass
526.95	V	-68.84		
4824.00	V	-55.99		
7236.00	V	-60.30		
9648.00	V	-57.78		
12060.00	V	-55.43		
142.08	Horizontal	-70.81		
672.37	H	-63.35		
4824.00	H	-55.39		
7236.00	H	-60.85		
9648.00	H	-58.36		
12060.00	H	-54.52		

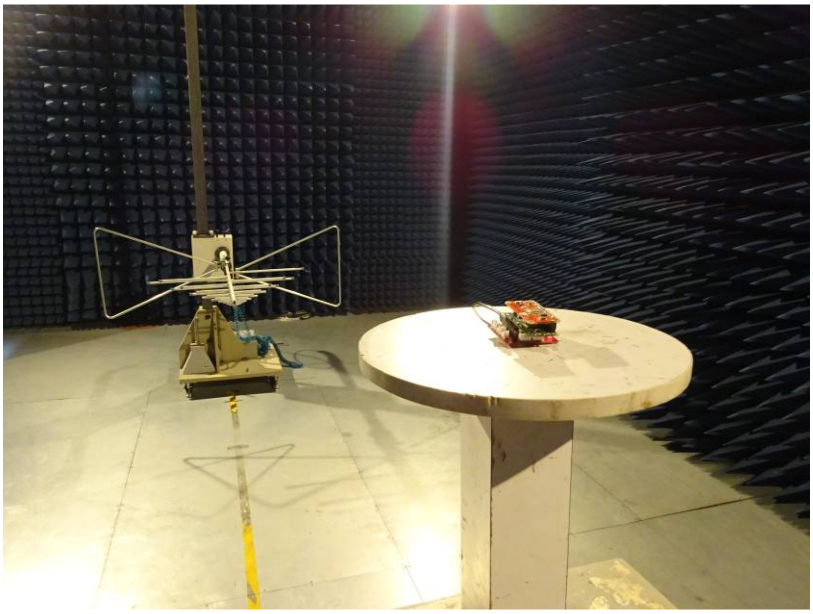
7.3.2 Receiver Blocking

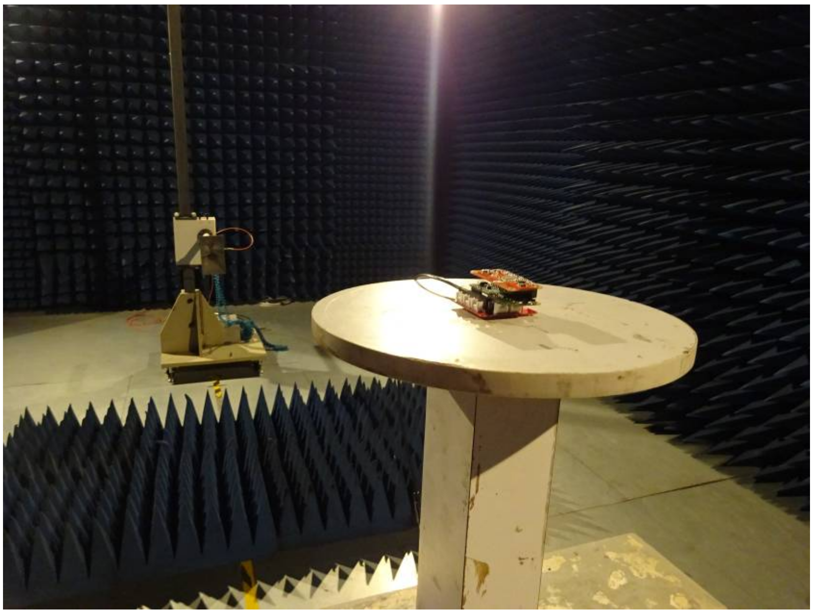
<table>
<tr><td>Test Requirement:</td><td>ETSI EN 300 328 clause 4.3.2.11</td></tr>
<tr><td>Test Method:</td><td>ETSI EN 300 328 clause 5.3.7.2.1</td></tr>
<tr><td>Limit:</td><td>Table 6: Receiver Blocking parameters
<table>
<tr><th>Equipment Type (LBT / non- LBT)</th><th>Wanted signal mean power from companion device</th><th>Blocking signal frequency [MHz]</th><th>Blocking signal power [dBm]</th><th>Type of interfering signal</th></tr>
<tr><td>LBT</td><td>sufficient to maintain the link (see note 2)</td><td rowspan="2">2 395 or 2 488,5 (see note 1)</td><td rowspan="2">-35</td><td rowspan="2">CW</td></tr>
<tr><td>Non-LBT</td><td>-30 dBm</td></tr>
<tr><td colspan="5">NOTE 1: The highest blocking frequency shall be used for testing operating channels within the range 2 400 MHz to 2 442 MHz, while the lowest blocking frequency shall be used for testing operating channels within the range 2 442 MHz to 2 483,5 MHz. See clause 5.3.7.1.
NOTE 2: A typical value which can be used in most cases is -50 dBm/MHz.</td></tr>
</table></td></tr>
<tr><td>Test setup:</td><td>
</td></tr>
<tr><td>Test procedure:</td><td>Refer to the procedure of adaptivity</td></tr>
<tr><td>Measurement Record:</td><td>Uncertainty: N/A</td></tr>
<tr><td>Test Instruments:</td><td>See section 6.0</td></tr>
<tr><td>Test mode:</td><td>Normal link mode</td></tr>
</table>

Measurement Data:

Observation Result: Refer to section 7.2.3, the blocking signal is injected while interference signal is present. With the presence of the blocking signal, channel of the observation does not resume the link.

8 Test setup photo





9 EUT Constructional Details

Reference to the test report No. : GTS201607000066E01

------end------