RF TEST REPORT

Certificate No.	:	TB210528151
Applicant	:	Navori SA
Equipment Under Test (EUT)		
EUT Name	:	StiX
Model No.	:	3700
Series Model No.	:	N/A
Brand Name	:	Navori
Receipt Date	:	2021-05-14
Test Date	:	2021-05-14 to 2021-06-22
Issue Date	:	2021-06-22
Standards	:	ETSI EN 301 893 V2.1.1: 2017
Conclusions	:	**PASS**

In the configuration tested, the EUT complied with the standards specified above. The EUT technically complies with the Council Directive 2014/53/EU relating to radio equipment.

Test/Witness Engineer : Camille Li

Engineer Supervisor : n Su

Engineer Manager : Ray Lai

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. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

1/F.,Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China
Tel: +86 75526509301 Fax: +86 75526509195

TABLE OF CONTENTS

Revision History

Report No.	Version	Description	Issued Date
TB-RF180395	Rev.01	Initial issue of report	2021-06-22

1 General Information

1.1 Client Information

Applicant	:	Navori SA
Address	:	Rue du Lion d'Or 4, CH-1003 Lausanne, Switzerland
Manufacturer	:	Shenzhen MicoRose Technology Co., Ltd.
Address	:	8B2A, Daqing Building, southeast of the intersection of Shennan Road and Guangshen Expressway, Futian District, Shenzhen, China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	StiX	
Model(s)	:	3700	
Product Description	:	Operation Frequency:	Band 1: 5150MHz~5250MHz
		Modulation Type:	802.11a: OFDM (QPSK, BPSK, 16QAM)
		Bit Rate of Transmitter	Using 20MHz bandwidth, data rate up to 173.3 Mbps
		Number of Channel:	Please see **Note(4)**
		Antenna Designation:	2.0 dBi External Antenna
		Max EIRP Power:	802.11a: 10.28dBm
Power Supply	:	For Adapter: Input: 100-240V~ Output:5V⎓, 2.5A	
Software Version	:	android 9.0	
Hardware Version	:	V1	
Remark	:	The antenna gain provided by the applicant, the verified for the RF conduction test provided by TOBY test lab.	

Note:

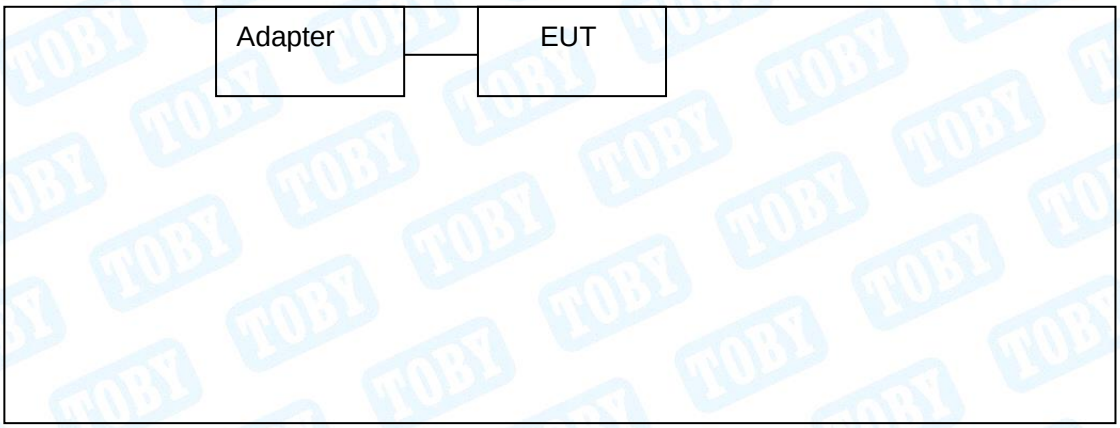
(1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

(2) This Test Report is ETSI EN 301 893 for 802.11a/n/ac function, under RED Directive Article 3.2.

(3) Channel List:

5G Band 5150~5250 MHz				
Frequency Band	**Channel No.**	**Frequency**	**Channel No.**	**Frequency**
Band 1	36	5180 MHz	44	5220 MHz
	38	5190 MHz	46	5230 MHz
	40	5200 MHz	48	5240 MHz
	42	5210 MHz		
Remark: For 20 MHz Bandwidth, use channel 36, 40, 44, 48. For 40 MHz Bandwidth, use channel 38, 46. For 80 MHz Bandwidth, use channel 42.				

1.3 Block Diagram Showing the Configuration of System Tested



1.4 Description of Support Units

Equipment Information				
Name	**Model**	**S/N**	**Manufacturer**	**Used " √ "**
Adapter	FJ-SW7260502500DE	-----	-----	√

1.5 Description of Operating Mode

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test Software: **CMD**			
Test Mode: Continuously transmitting			
Test Band: U-NII-1(5150~5250 MHz)			
Mode	**Data Rate**	**Channel**	**Parameters**
			ANT. 0
802.11a	OFDM/ 6Mbps	36	default
	OFDM/ 6Mbps	40	default
	OFDM/ 6Mbps	48	default

1.6 Description of Operating Mode

Normal Temperature(NT):	25°C
Relative Humidity:	25% to 75%
Air Pressure:	980-1020 hPa
Extreme Temperature	Low Temperature (LT)= -10°C High Temperature (HT)= +50°C
Normal Voltage of EUT (NV):	AC 230V
Extreme Voltage of the EUT	Low Voltage(LV)=207V High Voltage(HV)=253V
Remark: The extreme temperature and extreme voltage of the EUT is declared by the manufacturer.	

1.7 Test Channel

Clause	Test Item	Test Channel		
		Lower sub-band (5150-5350MHz)		Higher sub-band 5470-5725MHz
		5150-5250 MHz	5250-5350MHz	
5.4.2	Centre Frequencies	C7 (See note 1)		C8 (See note 1)
5.4.3	Occupied Channel Bandwidth	C7		C8
5.4.4	Power, Power density	C1	C2	C3, C4
5.4.5	Transmitter unwanted emissions outside 5 GHz RLAN bands	C7 (See note 1)		C8 (See note 1)
5.4.6	Transmitter unwanted emissions within 5 GHz RLAN bands	C1	C2	C3, C4
5.4.7	Receiver spurious emissions	C7 (See note 1)		C8 (See note 1)
5.4.4	Transmit Power Control (TPC)	n.a. (See note 2)	C2 (See note 1)	C3, C4 (See note 1)
5.4.8	DFS	n.a. (See note 2)	C5	C6 (See note 3)
5.4.9	Adaptivity	C9		
5.4.10	Receiver Blocking	C7		C8
C1,C3:	The lowest declared channel for every declared nominal channel bandwidth within this band. For the power density testing, it is sufficient to only perform this test using the lowest nominal channel bandwidth.			
C2,C4:	The highest declared channel for every declared nominal channel bandwidth within this band. For the power density testing, it is sufficient to only perform this test using the lowest nominal channel bandwidth.			
C5,C6:	One channel out of the declared channels for this frequency range. If more than one nominal channel bandwidth has been declared for this sub-band, testing shall be performed using the lowest and highest nominal channel bandwidth.			
C7,C8:	One channel out of the declared channels for this sub-band. For *Occupied Channel Bandwidth*, testing shall be repeated for every declared *Nominal Channel Bandwidth* within this sub-band.			
C9	One channel (in case of single-channel testing) or a group of channels (in case of multi-channel testing) out of the declared channels.			
Note 1:	In case of more than one channel plan has been declared, testing of these specific requirements need only be performed using one of the declared channel plans.			
Note 2:	Testing is not required for nominal channel bandwidths that fall completely within the frequency range 5150MHz to 5250MHz.			
Note 3:	Where the declared channel plan includes channels whose nominal channel bandwidth falls completely or partly within the 5 600 MHz to 5 650 MHz band, the tests for the Channel Availability Check (and where implemented, for the Off-Channel CAC) shall be performed on one of these channels in addition to a channel within the band 5 470 MHz to 5 600 MHz or within the band 5 650 MHz to 5 725 MHz.			

1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1/F.,Building 6, Rundongsheng Industrial Zone, Longzhu, Bao'an, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)
The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01
The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025：2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351.

IC Registration No.: (11950A)
The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A.

2 Information as required by EN 301 893 V2.1.1, clause 5.4.1

In accordance with EN 301 893, clause 5.4.1, the following information is provided by the supplier.

a) The Nominal Channel Bandwidth(s):

Nominal Channel Bandwidth 1: 20 MHz

The associated centre frequencies: in section 1.2(Note:3) of the test report.

b) For Load Based Equipment that supports multi-channel operation:

☐ The LBE equipment supports Option 1 as described in clause 4.2.7.3.2.3

☒ The LBE equipment supports Option 2 as described in clause 4.2.7.3.2.3

• The (maximum) number of channels used for multi-channel operation: 18

• These channels are adjacent channels: ☒ Yes ☐ No

• In case of non-adjacent channels, whether or not these channels are in different sub-bands:

☐ Yes ☒ No

• for LBE equipment implementing option 1 (see clause 4.2.7.3.2.3), the number of channels used for multichannel

operation when performing the test described in clause 5.4.9.3.2.3.1: N/A

In case of multi-channel operation, further information defining the channels used for these simultaneous transmissions may be required.

c) The different transmit operating modes (see clause 5.3.3.2) (tick all that apply):

☐ **Operating mode 1:** Single Antenna Equipment

☒ a) Equipment with only 1 antenna

☐ b) Equipment with diversity antennas but only 1 antenna active at any moment in time

☐ c) Smart Antenna Systems with 2 or more antennas, but operating in a (legacy) mode where only 1 antenna is used.

☒ **Operating mode 2:** Smart Antenna Systems - Multiple Antennas without beamforming

☒ a) Single spatial stream/Standard throughput

☒ b) High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 1

☐ c) High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 2

☐ **Operating mode 3:** Smart Antenna Systems - Multiple Antennas with beamforming

☐ a) Single spatial stream/Standard throughput

☐ b) High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 1

☐ c) High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 2

d) In case of Smart Antenna Systems or multiple antenna systems:

• The number of Receive chains: 1

• The number of Transmit chains: 1

• Equal power distribution among the transmit chains: ☒ Yes ☐ No

• In case of beamforming, the maximum (additional) beamforming gain: dB

NOTE: Beamforming gain does not include the basic gain of a single antenna (assembly).

e) TPC feature available: ☐ Yes ☒ No

h) The DFS related operating mode(s) of the equipment:

☐Master
☐Slave with radar detection
☒Slave without radar detection

i) User access restrictions (please check box below to confirm):

☒the equipment is constructed to comply with the requirements contained in clause 4.10 in ETSI EN 301 893 V2.1.1.

j) For equipment with Off-Channel CAC functionality:

The equipment has an *"Off-Channel CAC"* function: ☐Yes ☒No
If yes, specify the *"Off-Channel CAC Time"*
• For channels outside the 5 600 MHz to 5 650 MHz range:_____hours
• If applicable, for channels (partially) within the 5 600 MHz to 5 650 MHz range:_____ hours

k) The equipment can operate in ad-hoc mode:

☒ no ad-hoc operation
☐ ad-hoc operation in the frequency range 5 150 MHz to 5 250 MHz without DFS
☐ ad-hoc operation with DFS

l) Operating Frequency Range(s):

Range 1: ☐5 150 MHz to 5 350 MHz and 5 470 MHz to 5 725 MHz
Range 2: ☐5 470 MHz to 5 725 MHz
Range 3: ☒5 150 MHz to 5 250 MHz (ad-hoc without DFS)
Range 4: ☐other, please specify:_____
If the equipment has more than one Operating Frequency Range, tick all that apply.

m) The extreme operating temperature and supply voltage range that apply to the equipment:

☐-20 °C to +55 °C (Outdoor & Indoor usage)
☐0 °C to +35 °C (Indoor usage only)
☒Other:__-10°C to 50°C____.
The supply voltages of the stand-alone radio equipment or the supply voltages of the combined (host) equipment or test jig in case of plug-in devices:
Details provided are for the:
☒ stand-alone equipment
☐combined (or host) equipment
☐test jig

Supply Voltage

☒AC mains State AC voltage: Minimum: … Nominal: ... Maximum: ...

☐DC State AC voltage Minimum: … Nominal: . .. Maximum: . ..

In case of DC, indicate the type of power source: . ..

☐Internal Power Supply

☒External Power Supply or AC/DC adapter

☐Battery ☐Nickel Cadmium

☐Alkaline

☐Nickel-Metal Hydride

☐Lithium-Ion

☐Lead acid (Vehicle regulated)

☐Other

n) The test sequence/test software used (see also ETSI EN 301 893 (V2.1.1), clause 5.3.1.2):

CMD

o) Type of Equipment:

☒Stand-alone

☐Combined Equipment (Equipment where the radio part is fully integrated within another type of equipment)

☐Plug-in radio device (Equipment intended for a variety of host systems)

☐Other_____

p) Adaptivity (Channel Access Mechanism):

☐Frame Based Equipment

☒Load Based Equipment

r) With regards to Adaptivity for Load Based Equipment:

☐ The Load Based Equipment operates as a Supervising Device

☒ The Load Based Equipment operates as a Supervised Device

☐ The Load Based Equipment can operate as a Supervising and as a Supervised Device

☐ The Load Based Equipment makes use of note 1 in table 7 or note 1 in table 8 of ETSI EN 301 893 V2.1.1

The Priority Classes implemented by the Load Based Equipment

- When operating as a Supervising Device
  - ☐ Priority Class 4 (Highest priority)
  - ☒ Priority Class 3
  - ☐ Priority Class 2
  - ☐ Priority Class 1 (Lowest priority)
- When operating as a Supervised Device
  - ☐ Priority Class 4 (Highest priority)
  - ☐ Priority Class 3
  - ☐ Priority Class 2
  - ☐ Priority Class 1 (Lowest priority)

☐ The Load Based Equipment operates as an Initiating Device

☒ The Load Based Equipment operates as an Responding Device

☐ The Load Based Equipment can operate as an Initiating Device and as a Responding Device

With regard to Energy Detection Threshold, the Load Based Equipment has implemented either option 1 of clause 4.2.7.3.2.5 of ETSI EN 301 893 V2.1.1 or option 2 of clause 4.2.7.3.2.5 of ETSI EN 301 893 V2.1.1:

☒ Option 1
☐ Option 2

Specify which protocol has been implemented: IEEE 802.11™ Other:_____

s) The equipment supports a geo-location capability as defined in clause 4.2.10 of ETSI EN 301 893 V2.1.1:

☐ Yes
☒ No

3 Test Results Summary

Harmonized Standard EN 301 893					
Requirement			Requirement Conditionality		Observations
No	Description	Reference: Clause No	U/C	Condition	
1	Carrier Frequencies	4.2.1	U		PASS
2	Nominal, and occupied, channel bandwidth	4.2.2	U		PASS
3	RF output power	4.2.3	U		PASS
	Transmit Power Control (TPC)	4.2.3	C	1) Not required for channels whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz. 2) Not required for devices that operate at a maximum mean e.i.r.p. of 20 dBm when operating in 5250 MHz to 5350 MHz or 27 dBm when operating in 5 470 MHz to 5 725 MHz.	PASS
	Power Density	4.2.3	U		PASS
4	Transmitter unwanted emissions outside the 5 GHz RLAN bands	4.2.4.1	U		PASS
5	Transmitter unwanted emissions within the 5 GHz RLAN bands	4.2.4.2	U		PASS
6	Receiver spurious emissions	4.2.5	U		PASS
7	DFS: Channel Availability Check	4.2.6.2.2	C	1) Not required for channels whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz. 2) Not required for Slave devices with a maximum transmit power of less than 200 mW e.i.r.p. 3) Not required at initial use of a channel for slave devices with a maximum transmit power of 200 mW e.i.r.p.	N/A
8	DFS: Off-Channel CAC – Radar Detection Threshold	4.2.6.2.3	C	1) Where implemented by the manufacturer. 2) Not required for channels whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz. 3) Not required for slave devices with a maximum transmit power of less than 200 mW e.i.r.p. 4) Not required at initial use of a channel for Slave devices with a maximum transmit power of 200 mW e.i.r.p.	N/A
9	DFS: Off-Channel CAC – Detection Probability	4.2.6.2.3	C	1) Where implemented by the manufacturer. 2) Not required for channels whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz. 3) Not required for slave devices with a maximum transmit power of less than 200 mW e.i.r.p. 4) Not required at initial use of a channel for Slave devices with a maximum transmit power of 200 mW e.i.r.p.	N/A
10	DFS: In service Monitoring	4.2.6.2.4	C	1) Not required for channels whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz. 2) Not required for Slave devices with a maximum transmit power of less than 200 mW e.i.r.p.	N/A

11	DFS: Channel shutdown	4.2.6.2.5	C	Not required for channels whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz.	N/A
12	DFS: Non-occupancy period	4.2.6.2.6	C	1) Not required for channels whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz. 2) Not required for Slave devices with a maximum transmit power of less than 200 mW e.i.r.p.	N/A
13	DFS: Uniform spreading	4.2.6.2.7	C	1) Not required for channels whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz. 2) Not required for slave devices.	N/A
14	Adaptivity	4.2.7	U		PASS
15	Receiver Blocking	4.2.8	U		PASS
16	User Access Restrictions	4.2.9	U		PASS
17	Geo-locatin capability	4.2.10	C	Where implemented by the manufacturer.	N/A

Requirement:

No A unique identifier for one row of the table which may be used to identify a requirement.
Description A textual reference to the requirement.
Clause Number Identification of clause(s) defining the requirement in the present document unless another document is referenced explicitly.

Requirement Conditionality:
U/C Indicates whether the requirement is unconditionally applicable (U) or is conditional upon the manufacturer's claimed functionality of the equipment (C).
Condition Explains the conditions when the requirement is or is not applicable for a requirement which is classified "conditional".

Presumption of conformity stays valid only as long as a reference to the present document is maintained in the list published in the Official Journal of the European Union. Users of the present document should consult frequently the latest list published in the Official Journal of the European Union.

Other Union legislation may be applicable to the product(s) falling within the scope of the present document.

4 Test Software

Test Item	Test Software	Manufacturer	Version No.
Radiation Emission	EZ-EMC	EZ	FA-03A2RE
RF Conducted Measurement	MTS-8310	MWRFtest	V2.0.0.0

5 Test Equipment

Used Equipment List					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
Wideband Radio Comunication Tester	Rohde & Schwarz	CMW500	144382	Sep. 11, 2020	Sep. 10, 2021
MXA Signal Analyzer	Agilent	N9020A	MY49100060	Sep. 11, 2020	Sep. 10, 2021
Vector Signal Generator	Agilent	N5182A	MY50141294	Sep. 11, 2020	Sep. 10, 2021
Analog Signal Generator	Agilent	N5181A	MY50141953	Sep. 11, 2020	Sep. 10, 2021
RF Power Sensor	DARE!! Instruments	RadiPowerRP R3006W	17I00015SNO26	Sep. 11, 2020	Sep. 10, 2021
	DARE!! Instruments	RadiPowerRP R3006W	17I00015SNO29	Sep. 11, 2020	Sep. 10, 2021
	DARE!! Instruments	RadiPowerRP R3006W	17I00015SNO31	Sep. 11, 2020	Sep. 10, 2021
	DARE!! Instruments	RadiPowerRP R3006W	17I00015SNO33	Sep. 11, 2020	Sep. 10, 2021
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 06, 2020	Jul. 05, 2021
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jul. 06, 2020	Jul. 05, 2021
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jul. 06, 2020	Jul. 05, 2021
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 01, 2020	Feb. 28, 2022
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 01, 2020	Feb. 28, 2022
Horn Antenna	ETS-LINDGREN	BBHA 9170	BBHA9170582	Mar. 01, 2020	Feb. 28, 2022
Pre-amplifier	Sonoma	310N	185903	Feb. 25, 2021	Feb. 24, 2022
Pre-amplifier	HP	8449B	3008A00849	Feb. 25, 2021	Feb. 24, 2022
Cable	HUBER+SUHNER	100	SUCOFLEX	Feb. 25, 2021	Feb. 24, 2022
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A
Temp. &Humidity Chamber	ZHONG ZHI	CZ-A-225D	HW08053	Jul. 06, 2020	Jul. 05, 2021
DC Power Supply	MATRIX	MPS-3005L-3	D806050W	Jul. 06, 2020	Jul. 05, 2021
AC Power Supply	HengJie	HPC-1110	2010007	Jul. 06, 2020	Jul. 05, 2021

6 Centre Frequencies

6.1 Test Standard and Limit

6.1.1 Test Standard

ETSI EN 301 893 V2.1.1:2017 clause 5.4.2

6.1.2 Test Limit

The *Nominal Centre Frequencies* (fc) for a *Nominal Channel Bandwidth* of 20 MHz are defined by equation (1). See also figure 3.

fc = 5 160 + (g × 20) MHz, where 0 ≤ g ≤ 9 or 16 ≤ g ≤ 27 and where g shall be an integer. (1)

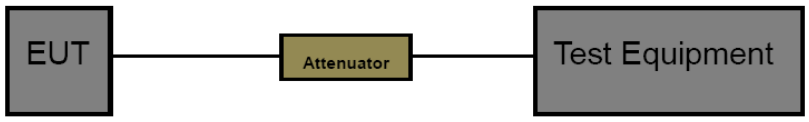
A maximum offset of the *Nominal Centre Frequency* of ±200 kHz is permitted. Where the manufacturer decides to make use of this frequency offset, the manufacturer shall declare the actual centre frequencies used by the equipment. See clause 5.4.1, item a).

The actual centre frequency for any given channel shall be maintained within the range f_c ± 20 ppm.

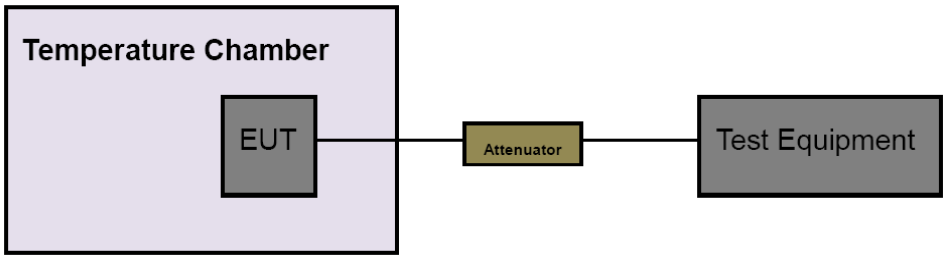
Equipment may have simultaneous transmissions on more than one *Operating Channel* with a *Nominal Channel Bandwidth* of 20 MHz.

6.2 Test Setup

Normal Condition



Extreme Condition



6.3 Test Procedure

Un-modulated Mode

1. The EUT was connected to Test Equipment via a suitable attenuator as show the block above.
2. Span to entire absence of the emissions bandwidth
3. Set RB/VB= 10 kHz/30 kHz, Detector Peak, Sweep Auto.
4. Max Hold and peak the highest frequency and record.

Modulated Mode

1. The EUT was connected to Test Equipment via a suitable attenuator as show the block above.
2. Span to entire absence of the emissions bandwidth
3. Set RB/VB= 100 kHz/300 kHz, Detector Peak, Sweep Auto.
4. Max Hold and peak value of the power envelope shall be measured and noted.
5. The span shall be reduced and the marker moved in a positive frequency increment until the upper, (relative to the centre frequency), -10 dBc point is reached. This value shall be noted as f1.
6. The marker shall then be moved to in a negative frequency increment until the lower, (relative to the centre frequency), -10 dBc point is reached. This value shall be noted as f2.
7. The centre frequency is calculated as (f1+f2)/2.

These measurements shall be performed under normal and extreme test conditions.

6.4 Deviation From Test Standard

No deviation

6.5 Test Data

Please refer to the Attachment A.

7 Occupied Channel Bandwidth

7.1 Test Standard and Limit

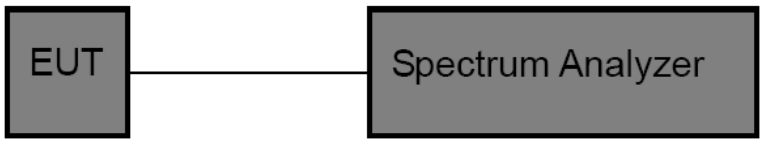
7.1.1 Test Standard

ETSI EN 301 893 V2.1.1:2017 clause 5.4.3.

7.1.2 Limits

Test Item	Limit
Occupied Channel Bandwidth	The Nominal Channel Bandwidth for a single Operating Channel shall be 20 MHz. Alternatively, equipment may implement a lower Nominal Channel Bandwidth with a minimum of 5 MHz, providing they still comply with the Nominal Centre Frequencies defined in clause 4.2.1 (20 MHz raster). The Occupied Channel Bandwidth shall be between 80 % and 100 % of the Nominal Channel Bandwidth. In case of smart antenna systems (devices with multiple transmit chains) each of the transmit chains shall meet this requirement. The Occupied Channel Bandwidth might change with time/payload. During a Channel Occupancy Time (COT), equipment may operate temporarily with an Occupied Channel Bandwidth of less than 80 % of its Nominal Channel Bandwidth with a minimum of 2 MHz.

7.2 Test Setup



7.3 Test Procedure

Conducted measurement

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 Bandwidth: 100 kHz
  - Video Bandwidth: 300 kHz
  - Frequency Span: 2 × Nominal Bandwidth (e.g. 40 MHz for a 20 MHz channel)
  - Sweep time: > 1 s; for larger Nominal Bandwidths, the sweep time may be increased until a value where the sweep time has no impact on the RMS value of the signal.
  - Detector Mode: RMS
  - Trace Mode: Max Hold

Step 2:

- Wait for the trace to stabilize.

Step 3:

- 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.
- Use the 99 % bandwidth function of the spectrum analyser to measure the *Occupied Channel Bandwidth* of the UUT. This value shall be recorded.

The measurement described in step 1 to step 3 above shall be repeated in case of simultaneous transmissions in non-adjacent channels.

7.4 Deviation From Test Standard

No deviation

7.5 Test Data

Please refer to the Attachment B.

8 RF Output Power

8.1 Test Standard and Limit

8.1.1 Test Standard

ETSI EN 301 893 V2.1.1:2017 clause 5.4.4

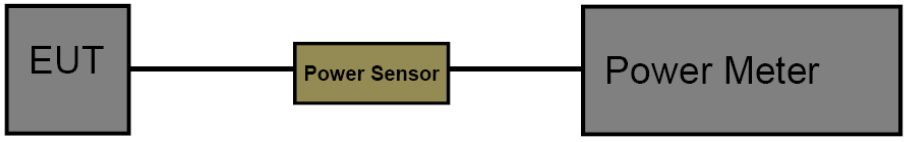
8.1.2 Limits

Frequency range (MHz)	Mean e.i.r.p. limit for P_H (dBm)		Mean e.i.r.p. density limit (dBm/MHz)	
	with TPC	without TPC	with TPC	without TPC
5 150 to 5 350	23	20/23 (see note 1)	10	7/10 (see note 2)
5 470 to 5 725	30 (see note 3)	27 (see note 3)	17 (see note 3)	14 (see note 3)

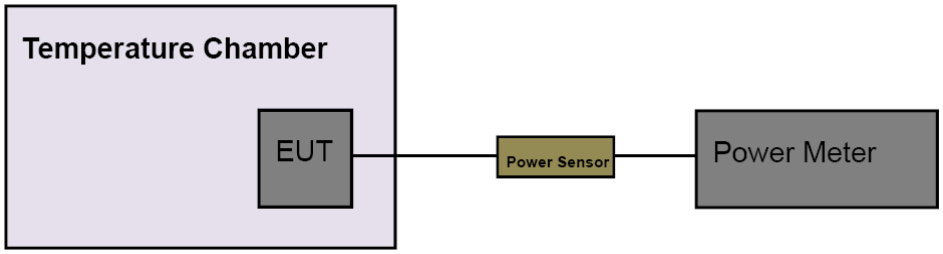
NOTE 1: The applicable limit is 20 dBm, except for transmissions whose nominal bandwidth falls completely within the band 5 150 MHz to 5 250 MHz, in which case the applicable limit is 23 dBm.
NOTE 2: The applicable limit is 7 dBm/MHz, except for transmissions whose nominal bandwidth falls completely within the band 5 150 MHz to 5 250 MHz, in which case the applicable limit is 10 dBm/MHz.
NOTE 3: Slave devices without a *Radar Interference Detection* function shall comply with the limits for the frequency range 5 250 MHz to 5 350 MHz.

8.2 Test Setup

Normal Condition



Extreme Condition



8.3 Test Procedure

Please refer to ETSI EN 301 893 (V2.1.1) clause 5.4.4.2.1.1

8.4 Deviation From Test Standard

No deviation

8.5 Test Data

Please refer to the Attachment C.

9 Transmit Power Control (TPC)

9.1 Test Standard and Limit

9.1.1 Test Standard

ETSI EN 301 893 V2.1.1:2017 clause 5.4.4

9.1.2 Limits

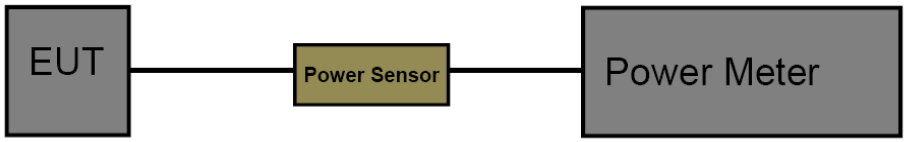
For devices using TPC, the RF Output Power during a transmission burst when configured to operate at the lowest stated power level (P_L) of the TPC range shall not exceed the levels given in table 3. For devices without TPC, the limits in table 3 do not apply.

Table 3: Mean e.i.r.p. limits for RF Output Power at the lowest power level of the TPC range

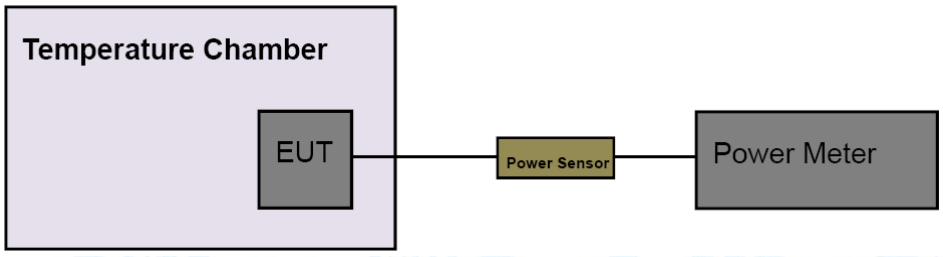
Frequency range	Mean e.i.r.p. (dBm) limit for P_L
5 250 MHz to 5 350 MHz	17
5 470 MHz to 5 725 MHz	24 (see note)
NOTE: Slave devices without a *Radar Interference Detection* function shall comply with the limits for the band 5 250 MHz to 5 350 MHz.	

9.2 Test Setup

Normal Condition



Extreme Condition



9.3 Test Procedure

Please refer to ETSI EN 301 893 (V2.1.1) clause 5.4.4.2.1.2

9.4 Deviation From Test Standard

No deviation

9.5 Test Data

The EUT with TPC function, and Comply the requirements of Table 3.

10 Power Density

10.1 Test Standard and Limit

10.1.1 Test Standard

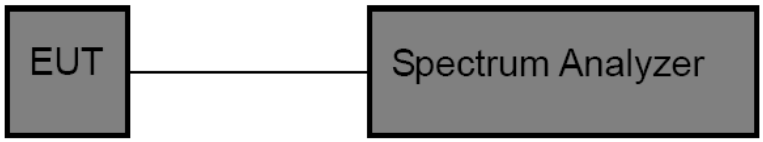
ETSI EN 301 893 V2.1.1:2017 clause 5.4.4

10.1.2 Limits

Frequency range (MHz)	Mean e.i.r.p. limit for P_H (dBm)		Mean e.i.r.p. density limit (dBm/MHz)	
	with TPC	without TPC	with TPC	without TPC
5 150 to 5 350	23	20/23 (see note 1)	10	7/10 (see note 2)
5 470 to 5 725	30 (see note 3)	27 (see note 3)	17 (see note 3)	14 (see note 3)

NOTE 1: The applicable limit is 20 dBm, except for transmissions whose nominal bandwidth falls completely within the band 5 150 MHz to 5 250 MHz, in which case the applicable limit is 23 dBm.
NOTE 2: The applicable limit is 7 dBm/MHz, except for transmissions whose nominal bandwidth falls completely within the band 5 150 MHz to 5 250 MHz, in which case the applicable limit is 10 dBm/MHz.
NOTE 3: Slave devices without a *Radar Interference Detection* function shall comply with the limits for the frequency range 5 250 MHz to 5 350 MHz.

10.2 Test Setup



10.3 Test Procedure

Please refer to ETSI EN 301 893 (V2.1.1) clause 5.4.4.2.1.3

10.4 Deviation From Test Standard

No deviation

10.5 Test Data

Please refer to the Attachment D.

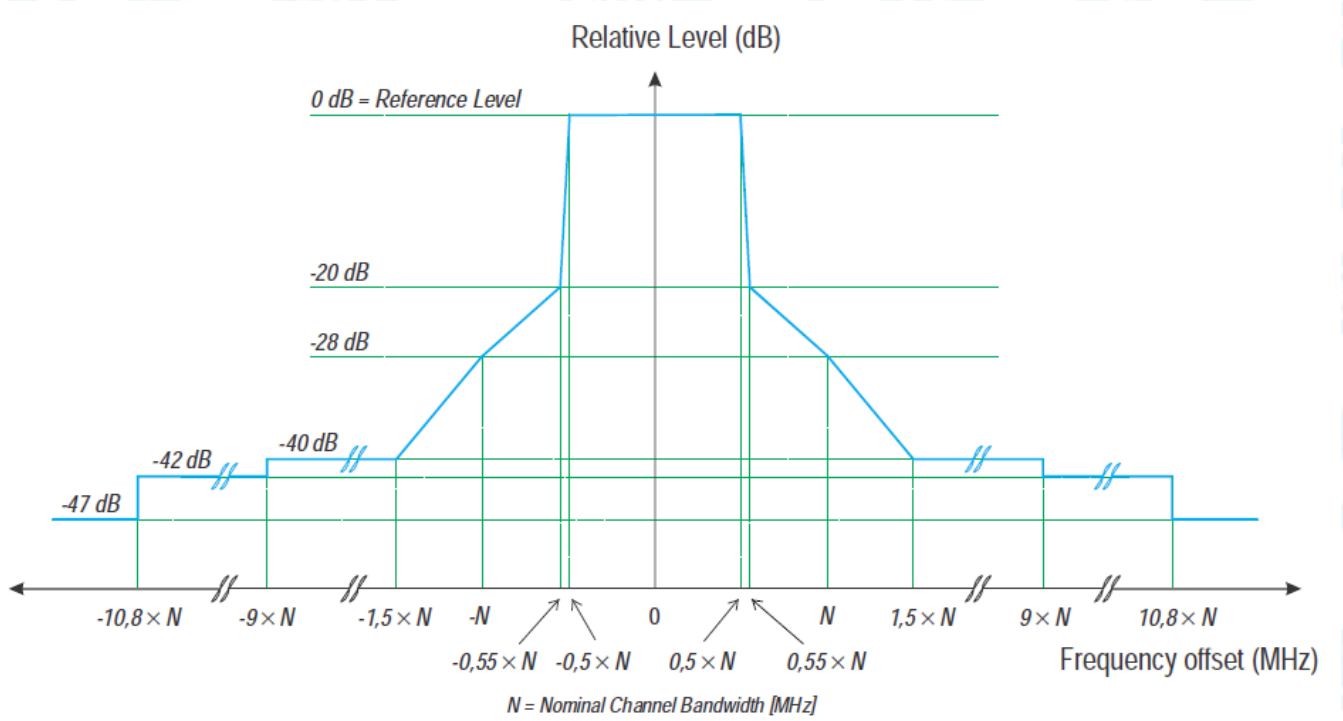
11 Transmitter Unwanted Emissions within 5 GHz RLAN Bands

11.1 Test Standard and Limit

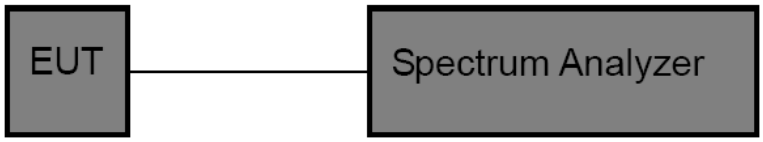
11.1.1 Test Standard

ETSI EN 301 893 V2.1.1:2017 clause 5.4.6

11.1.2 Limits



11.2 Test Setup



11.3 Test Procedure

Please refer to ETSI EN 301 893 (V2.1.1) clause 5.4.6.2

11.4 Deviation From Test Standard

No deviation

11.5 Test Data

Please refer to the Attachment E.

12 Transmitter Unwanted Emissions Outside the 5GHz RLAN Bands

12.1 Test Standard and Limit

12.1.1 Test Standard

ETSI EN 301 893 V2.1.1:2017 clause 5.4.5

12.1.2 Limits

The level of transmitter unwanted emissions outside the 5 GHz RLAN bands shall not exceed the limits given in table 4.

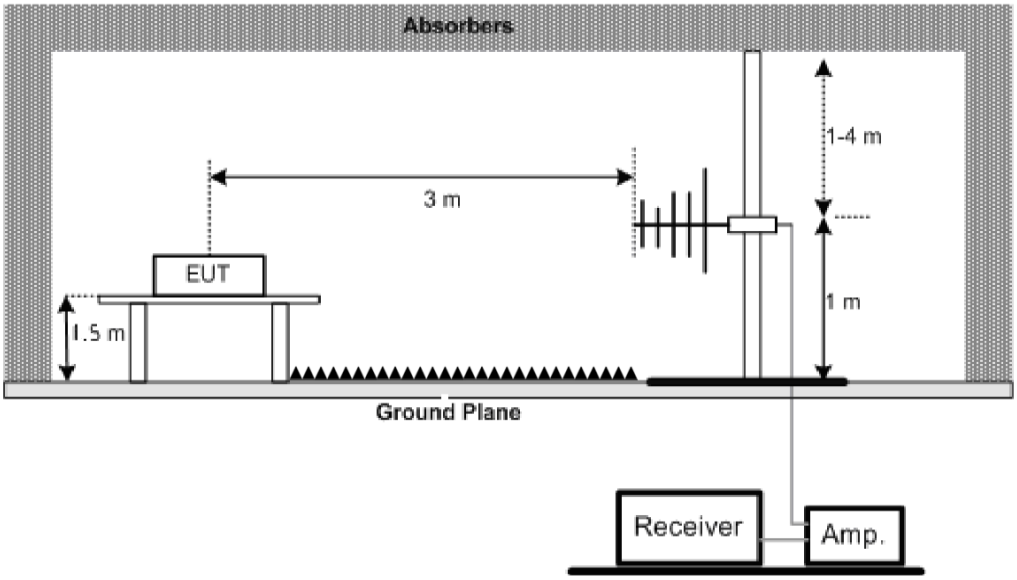
In case of equipment with antenna connectors, these limits apply to emissions at the antenna port (conducted). For emissions radiated by the cabinet or emissions radiated by integral antenna equipment (without antenna connectors), these limits are e.r.p. for emissions up to 1 GHz and e.i.r.p. for emissions above 1 GHz.

Transmitter unwanted emission limits outside the 5 GHz RLAN bands

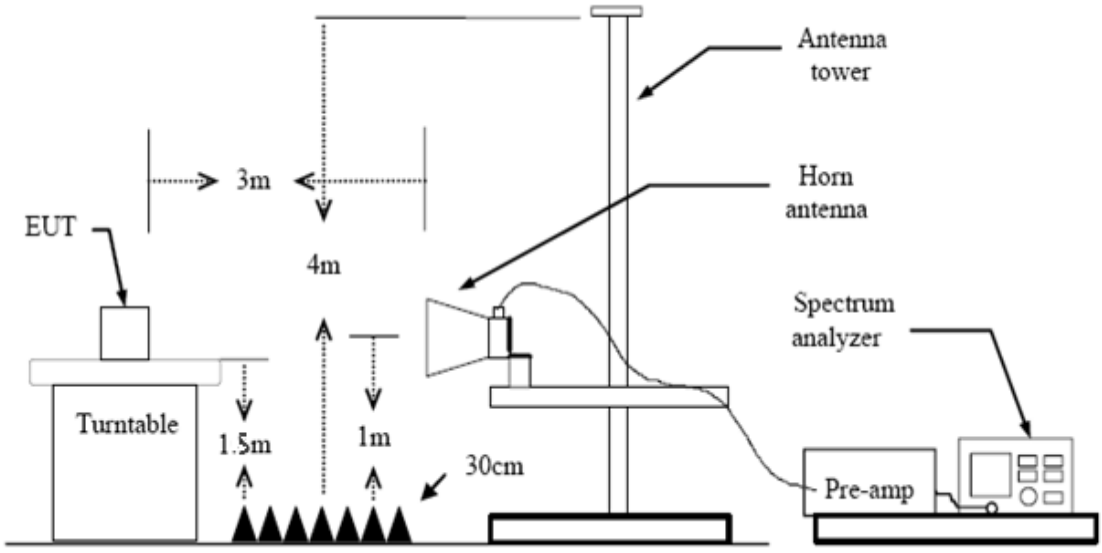
Frequency range	Maximum power	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 kHz
47 MHz to 74 MHz	-54 dBm	100 kHz
74 MHz to 87,5 MHz	-36 dBm	100 kHz
87,5 MHz to 118 MHz	-54 dBm	100 kHz
118 MHz to 174 MHz	-36 dBm	100 kHz
174 MHz to 230 MHz	-54 dBm	100 kHz
230 MHz to 470 MHz	-36 dBm	100 kHz
470 MHz to 862 MHz	-54 dBm	100 kHz
862 MHz to 1 GHz	-36 dBm	100 kHz
1 GHz to 5,15 GHz	-30 dBm	1 MHz
5,35 GHz to 5,47 GHz	-30 dBm	1 MHz
5,725 GHz to 26 GHz	-30 dBm	1 MHz

12.2 Test Setup

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz.



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz.



12.3 Test Procedure

Please refer to ETSI EN 301 893 (V2.1.1) clause 5.4.5.2

12.4 Deviation From Test Standard

No deviation

12.5 Test Data

Please refer to the Attachment F.

13 Receiver Spurious Emissions

13.1 Test Standard and Limit

13.1.1 Test Standard

ETSI EN 301 893 V2.1.1:2017 clause 5.4.7

13.2Limits

The spurious emissions of the receiver shall not exceed the limits given in table 5.

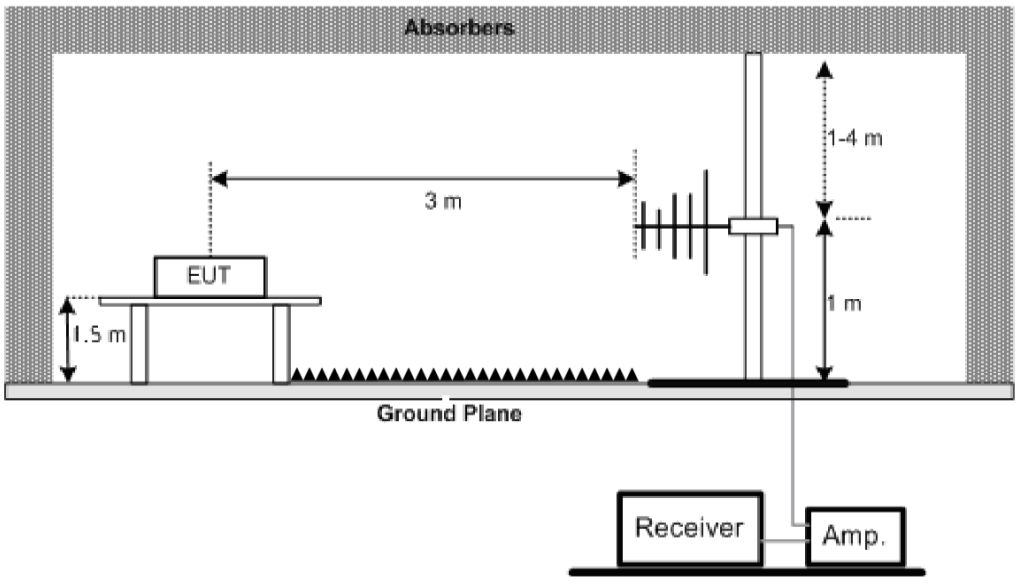
In case of equipment with antenna connectors, these limits apply to emissions at the antenna port (conducted). For emissions radiated by the cabinet or emissions radiated by integral antenna equipment (without antenna connectors), these limits are e.r.p. for emissions up to 1 GHz and e.i.r.p. for emissions above 1 GHz.

Spurious radiated emission limits

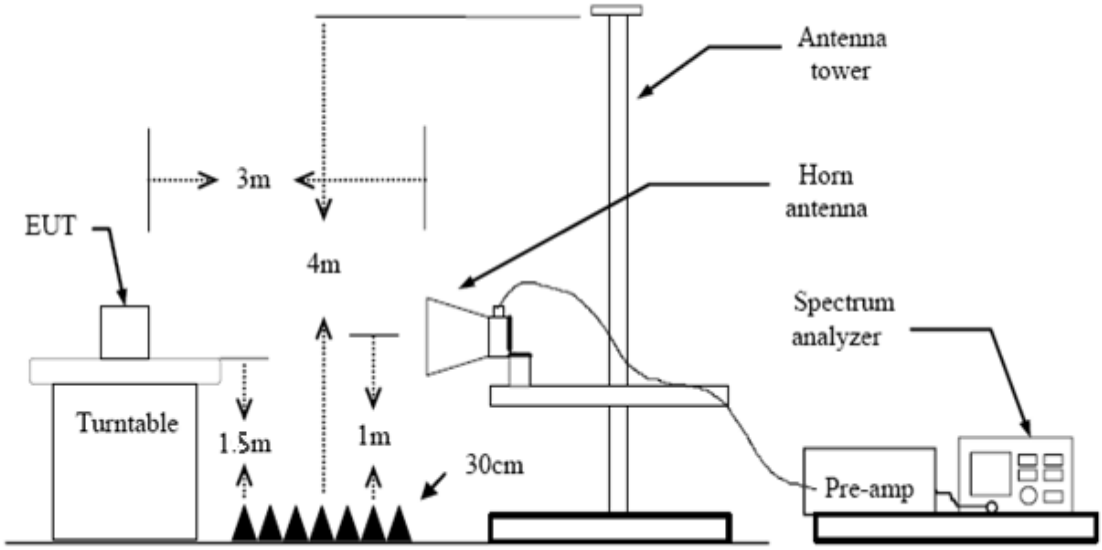
Frequency Range	Maximum Power	Measurement bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz
1 GHz to 26 GHz	-47 dBm	1 MHz

13.3 Test Setup

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz.



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz.



13.4 Test Procedure

Please refer to ETSI EN 301 893 (V2.1.1) clause 5.4.7.2

13.5 Deviation From Test Standard

No deviation

13.6 Test Data

Please refer to the Attachment G.

14 Adaptivity (Channel Access Mechanism)

14.1 Test Standard and Limit

14.1.1 Test Standard

ETSI EN 301 893 V2.1.1:2017 clause 5.4.7

14.1.2 Requirements and Limits Of Adaptive

Channel Access Mechanism		
Requirements	**Frame Based Equipment**	**Load Based Equipment**
Minimum Clear Channel Assessment (CCA) Time	9 μs	9 μs
Maximum Channel Occupancy (COT) Time	95 % of the Fixed Frame Period (Note 1)	2 ~ 10 ms(see table 1 & 2)
Minimum Idle Period	5% COT, with a min of 100 μs	27μs
Extended CCA check	N/A	N/A
Short Control Signalling Transmissions	Maximum duty cycle of 5 % within an observation period of 50 ms	
Note 1: The Fixed Frame Periods supported by the equipment shall be declared by the manufacturer and shall be within the range of 1 ms to 10 ms.		

Table 1: Priority Class dependent Channel Access parameters for Supervising Devices

Class #	p_0	CW_{min}	CW_{max}	maximum Channel Occupancy Time (COT)
4	1	3	7	2 ms
3	1	7	15	4 ms
2	3	15	63	6 ms (see note 1 and note 2)
1	7	15	1 023	6 ms (see note 1)

NOTE 1: The maximum *Channel Occupancy Time* (COT) of 6 ms may be increased to 8 ms by inserting one or more pauses. The minimum duration of a pause shall be 100 μs. The maximum duration (Channel Occupancy) before including any such pause shall be 6 ms. Pause duration is not included in the channel occupancy time.

NOTE 2: The maximum Channel Occupancy Time (COT) of 6 ms may be increased to 10 ms by extending CW to CW × 2 + 1 when selecting the random number q for any backoff(s) that precede the Channel Occupancy that may exceed 6 ms or which follow the Channel Occupancy that exceeded 6 ms. The choice between preceding or following a Channel Occupancy shall remain unchanged during the operation time of the device.

NOTE 3: The values for p_0, CW_{min}, CW_{max} are minimum values. Greater values are allowed.

Table 2: Priority Class dependent Channel Access parameters for Supervised Devices

Class #	p_0	CW_{min}	CW_{max}	Maximum Channel Occupancy Time (COT)
4	2	3	7	2 ms
3	2	7	15	4 ms
2	3	15	1 023	6 ms (see note 1)
1	7	15	1 023	6 ms (see note 1)

NOTE 1: The maximum *Channel Occupancy Time* (COT) of 6 ms may be increased to 8 ms by inserting one or more pauses. The minimum duration of a pause shall be 100 μs. The maximum duration (Channel Occupancy) before including any such pause shall be 6 ms. Pause duration is not included in the channel occupancy time.

NOTE 2: The values for p_0, CW_{min}, CW_{max} are minimum values. Greater values are allowed.

Table 3: Classification of Idle Periods dependent Priority Class for Supervising Devices

Class #	Idle Periods Classification
4	If the UUT is a *Supervised Device*, bin B_n is defined as: $B_n = \begin{cases} [0, 32[\ \mu s, & n = 0 \\ [32 + 9 \times (n-1), 32 + 9 \times n[\ \mu s, & 1 \le n \le 3 \\ [59, \infty[\ \mu s, & n = 4 \end{cases}$ If the UUT is a *Supervising Device*, bin B_n is defined as: $B_n = \begin{cases} [0, 23[\ \mu s, & n = 0 \\ [23 + 9 \times (n-1), 23 + 9 \times n[\ \mu s, & 1 \le n \le 3 \\ [50, \infty[\ \mu s, & n = 4 \end{cases}$
3	If the UUT is a *Supervised Device*, bin B_n is defined as: $B_n = \begin{cases} [0, 32[\ \mu s, & n = 0 \\ [32 + 9 \times (n-1), 32 + 9 \times n[\ \mu s, & 1 \le n \le 7 \\ [95, \infty[\ \mu s, & n = 8 \end{cases}$ If the UUT is a *Supervising Device*, bin B_n is defined as: $B_n = \begin{cases} [0, 23[\ \mu s, & n = 0 \\ [23 + 9 \times (n-1), 23 + 9 \times n[\ \mu s, & 1 \le n \le 7 \\ [86, \infty[\ \mu s, & n = 8 \end{cases}$
2	If the UUT is a *Supervising Device* making use of note 2 in table 7 in clause 4.2.7.3.2.4, bin *Bn* is defined as: $B_n = \begin{cases} [0, 41[\ \mu s, & n = 0 \\ [41 + 9 \times (n-1), 41 + 9 \times n[\ \mu s, & 1 \le n \le 31 \\ [320, \infty[\ \mu s, & n = 32 \end{cases}$ If the UUT is a *Supervised Device* or if the UUT is a *Supervising Device* not making use of note 2 in table 7 in clause 4.2.7.3.2.4, bin *Bn* is defined as: $B_n = \begin{cases} [0, 41[\ \mu s, & n = 0 \\ [41 + 9 \times (n-1), 41 + 9 \times n[\ \mu s, & 1 \le n \le 15 \\ [176, \infty[\ \mu s, & n = 16 \end{cases}$
1	$B_n = \begin{cases} [0, 77[\ \mu s, n = 0 \\ [77 + 9 \times (n-1), 77 + 9 \times n[\ \mu s, & 1 \le n \le 15 \\ [212, \infty[\ \mu s, & n = 16 \end{cases}$

Table 4: Classification of Idle Periods dependent Priority Class for Supervised Devices

Class #	Idle Periods Classification
4	$B_n = \begin{cases} [0, 32[\ \mu s, & n = 0 \\ [32 + 9 \times (n-1), 32 + 9 \times n[\ \mu s, & 1 \le n \le 3 \\ [59, \infty[\ \mu s, & n = 4 \end{cases}$
3	$B_n = \begin{cases} [0, 32[\ \mu s, & n = 0 \\ [32 + 9 \times (n-1), 32 + 9 \times n[\ \mu s, & 1 \le n \le 3 \\ [59, \infty[\ \mu s, & n = 4 \end{cases}$
2	$B_n = \begin{cases} [0, 41[\ \mu s, & n = 0 \\ [41 + 9 \times (n-1), 41 + 9 \times n[\ \mu s, & 1 \le n \le 15 \\ [176, \infty[\ \mu s, & n = 16 \end{cases}$
1	$B_n = \begin{cases} [0, 77[\ \mu s, n = 0 \\ [77 + 9 \times (n-1), 77 + 9 \times n[\ \mu s, & 1 \le n \le 15 \\ [212, \infty[\ \mu s, & n = 16 \end{cases}$

Table 5: Idle Periods probability dependent Priority Class

Class #	Idle Periods probability
4	$p(n) \leq \begin{cases} 0{,}05, & n = 0 \\ 0{,}05 + n \times 0{,}25, & 1 \leq n \leq 3 \\ 1, & n > 3 \end{cases}$
3	$p(n) \leq \begin{cases} 0{,}05, & n = 0 \\ 0{,}18, & n = 1 \\ 0{,}18 + (n-1) \times 0{,}125, & 2 \leq n \leq 6 \\ 1, & n > 6 \end{cases}$
2	$p(n) \leq \begin{cases} 0{,}05, & n = 0 \\ 0{,}12, & n = 1 \\ 0{,}12 + (n-1) \times 0{,}03125, & 2 \leq n \leq 29 \\ 1, & n > 29 \end{cases}$ (use of note 2 in table 1) $p(n) \leq \begin{cases} 0{,}05, & n = 0 \\ 0{,}12, & n = 1 \\ 0{,}12 + (n-1) \times 0{,}0625, & 2 \leq n \leq 15 \\ 1, & n > 15 \end{cases}$ (not use of note 2 in table 1) $p(n) \leq \begin{cases} 0{,}05, & n = 0 \\ 0{,}12, & n = 1 \\ 0{,}12 + (n-1) \times 0{,}0625, & 2 \leq n \leq 15 \\ 1, & n > 15 \end{cases}$ (use of note 1 in table 1 & table 2)
1	$p(n) \leq \begin{cases} 0{,}05, & n = 0 \\ 0{,}12, & n = 1 \\ 0{,}12 + (n-1) \times 0{,}0625, & 2 \leq n \leq 15 \\ 1, & n > 15 \end{cases}$

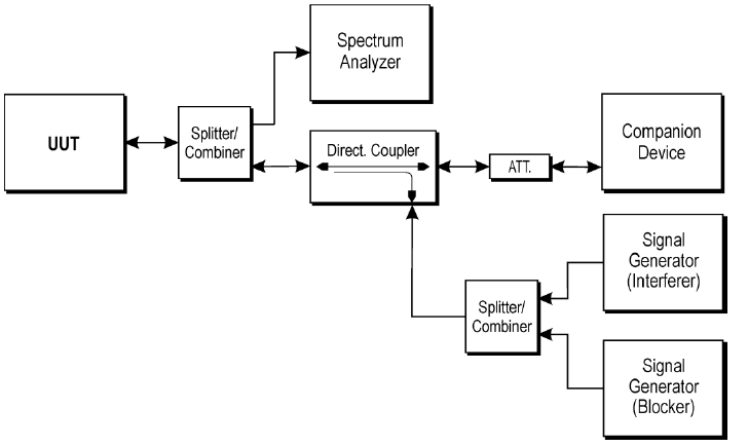
1. E define the total number of Idle Periods observed. Then E is the sum of events in all bins:

$$E = \sum_{n=0}^{k} H(B_n)$$

2. p(n) define the probability that idle periods of duration less than the upper limit specified for bin B_n occurred, p(n) = p (Idle Period < upper limit of bin B_n)

$$p(n) = \frac{\sum_{i=0}^{n} H(B_i)}{E}$$

14.2 Test Setup



14.3 Test Procedure

Please refer to ETSI EN 301 893 (V2.1.1) clause 5.4.9.2.2

14.4 Deviation From Test Standard

No deviation

14.5 Test Data

Please refer to the Attachment H.

15 Receiver Blocking

15.1 Test Standard and Limit

15.1.1 Test Standard

ETSI EN 301 893 V2.1.1:2017 clause 5.4.10

15.1.2 Test Definition

Receiver blocking is a measure of the capability of the equipment to receive a wanted signal on its operating channel without exceeding a given degradation due to the presence of an unwanted input signal (blocking signal) on frequencies other than those of the operating bands provided in table 1.

Table 1: Service frequency bands

	Service frequency bands
Transmit	5 150 MHz to 5 350 MHz
Receive	5 150 MHz to 5 350 MHz
Transmit	5 470 MHz to 5 725 MHz
Receive	5 470 MHz to 5 725 MHz

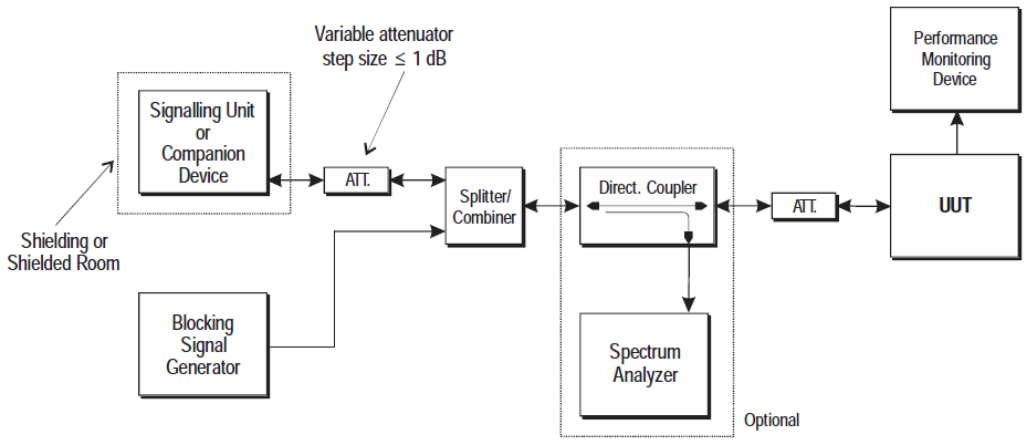
15.1.3 Test Limits

While maintaining the minimum performance criteria as defined in clause 4.2.8.3, the blocking levels at specified frequency offsets shall be equal to or greater than the limits defined in table 9.

Table 9: Receiver Blocking parameters

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 2)		Type of blocking signal
		Master or Slave with radar detection (see table D.2, note 2)	Slave without radar detection (see table D.2, note 2)	
Pmin + 6 dB	5 100	-53	-59	Continuous Wave
Pmin + 6 dB	4 900 5 000 5 975	-47	-53	Continuous Wave
NOTE 1: P_{min} is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined clause 4.2.8.3 in the absence of any blocking signal. NOTE 2: The levels specified are levels in front of the UUT antenna. In case of conducted measurements, the same levels should be used at the antenna connector irrespective of antenna gain.				

15.2 Test Setup



15.3 Test Procedure

Please refer to ETSI EN 301 893 (V2.1.1) clause 5.4.10.2.1

The steps below define the procedure to verify the receiver blocking requirement as described in clause 4.2.8.

Step 1:

• The UUT shall be set to the first operating frequency to be tested (see clause 5.3.2).

Step 2:

• The blocking signal generator is set to the first frequency as defined in table 9.

Step 3:

• With the blocking signal generator switched off a communication link is set up between the UUT and the associated companion device using the test setup shown in figure 18. The attenuation of the variable attenuator shall be increased in 1 dB steps to a value at which the minimum performance criteria as specified in clause 4.2.8.3 is still met. The resulting level for the wanted signal at the input of the UUT is P_{min}.

• This signal level (P_{min}) is increased by 6 dB resulting in a new level (P_{min} + 6 dB) of the wanted signal at the UUT receiver input.

Step 4:

• The level of the blocking signal at the UUT input is set to the level provided in table 9. It shall be verified and recorded in the test report that the performance criteria as specified in clause 4.2.8.3 are met.

• If the performance criteria as specified in clause 4.2.8.3 are met, the level of the blocking signal at the UUT may be further increased (e.g. in steps of 1 dB) until the level whereby the performance criteria as specified in clause 4.2.8.3 are no longer met. The highest level at which the performance criteria are met is recorded in the test report.

Step 5:

• Repeat step 4 for each remaining combination of frequency and level as specified in table 9.

15.4 Deviation From Test Standard

No deviation

15.5 Test Data

Please refer to the Attachment I.

16 User Access Restrictions

16.1 Test Standard and Limit

16.1.1 Test Standard

ETSI EN 301 893 V2.1.1:2017 clause 4.2.9

16.1.2 Test Definition

User Access Restrictions are constraints implemented in the RLAN device to restrict access of the user to any hardware and/or software settings of the equipment, including software replacement(s), which may impact (directly or indirectly) the compliance of the equipment with the requirements in the present document.

NOTE: The user should be understood as the end user, the operator or any person not responsible for the compliance of the equipment against the requirements in the present document.

16.1.3 Requirement

The equipment shall be so constructed that settings (hardware and/or software) related to DFS shall not be accessible to the user if changing those settings result in the equipment no longer being compliant with the DFS requirements in clause 4.2.6.
The above requirement includes the prevention of indirect access to any setting that impacts DFS. The following is a non-exhaustive list of examples of such indirect access.

EXAMPLE 1: The equipment should not allow the user to change the country of operation and/or the operating frequency band if that results in the equipment no longer being compliant with the DFS requirements.

EXAMPLE 2: The equipment should not accept software and/or firmware which results in the equipment no longer being compliant with the DFS requirements, e.g.:

- software and/or firmware provided by the manufacturer but intended for other regulatory regimes;
- modified software and/or firmware where the software and/or firmware is available as open source code;
- previous versions of the software and/or firmware (downgrade).

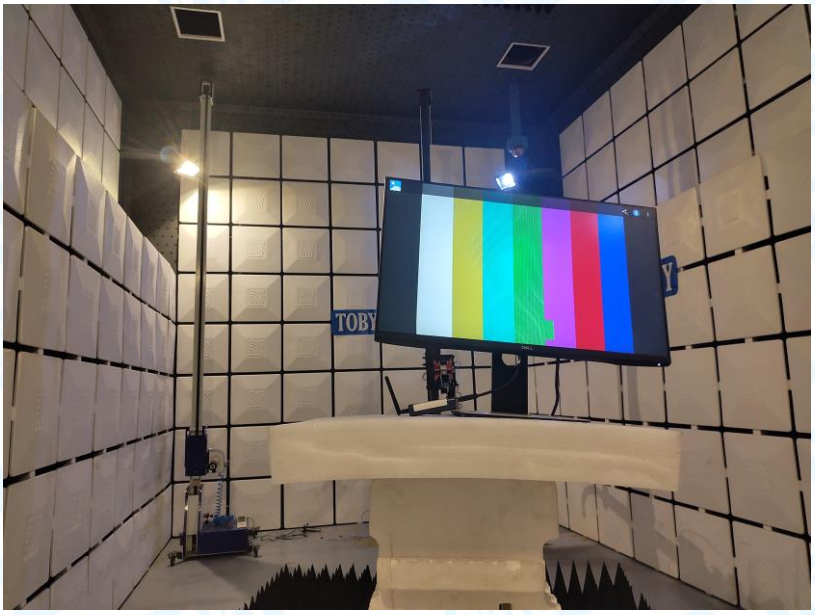
16.2 Test Data

The EUT meet the EXAMPLE 2.

17 Photographs – Test Setup

Radiated Spurious Emission (Below 1 GHz)

Radiated Spurious Emission (Above 1 GHz)



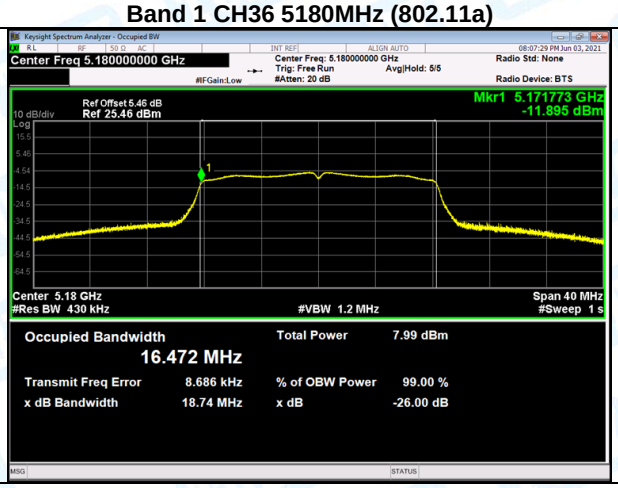
Attachment A--Centre Frequencies Test Data

Test Mode:	Continuous transmitting Mode (Modulated Mode)								
	802.11 a								
Rel. Humidity:	55%								
Test Conditions	Measurement Frequency (MHz)								
	Band 1			Band 2			Band 3		
	5180MHz	5200MHz	5240MHz	5260MHz	5280MHz	5320MHz	5500MHz	5600MHz	5700MHz
Tnom, Vnom	5180.0200	5200.0200	5240.0000	/	/	/	/	/	/
Tmin, Vmin	5180.0000	5200.0000	5240.0000	/	/	/	/	/	/
Tmin, Vmax	5180.0000	5200.0000	5240.0000	/	/	/	/	/	/
Tmax, Vmin	5180.0000	5200.0000	5240.0000	/	/	/	/	/	/
Tmax, Vmax	5180.0000	5200.0000	5240.0000	/	/	/	/	/	/
Max. Deviation (MHz)	0.0200	0.0200	0	/	/	/	/	/	/
Max. Deviation (ppm)	3.86	3.85	0	/	/	/	/	/	/
Limit (ppm)	20								
Result	PASS								
Note: Centre frequency=(F_L+F_H)/2									

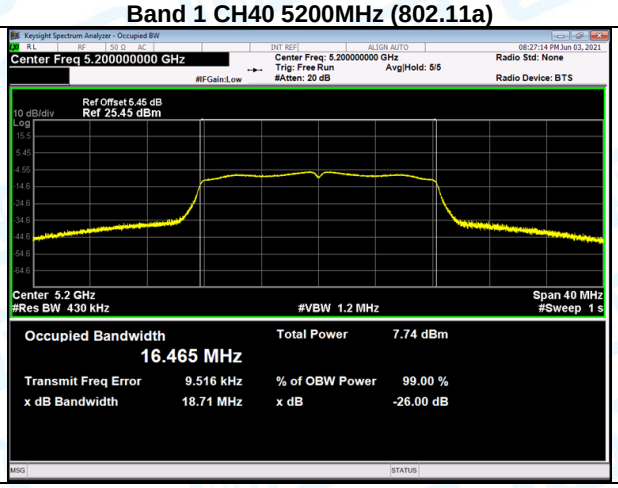
Attachment B--Occupied Channel Bandwidth Test Data

Test Voltage: AC 230V					
Test Conditions: Continuous transmitting mode					
Rel.Humidity: 55%		**Pressure:** 1010 hPa			
Occupied Channel Bandwidth for 5150~5250 MHz					
Test Mode	**99% Occupied Bandwidth (MHz)**			**Limit (MHz)**	**Result**
	CH 36	**CH 40**	**CH 48**		
802.11a	16.472	16.465	16.453	**16~20**	**Pass**
Please see following test data:					

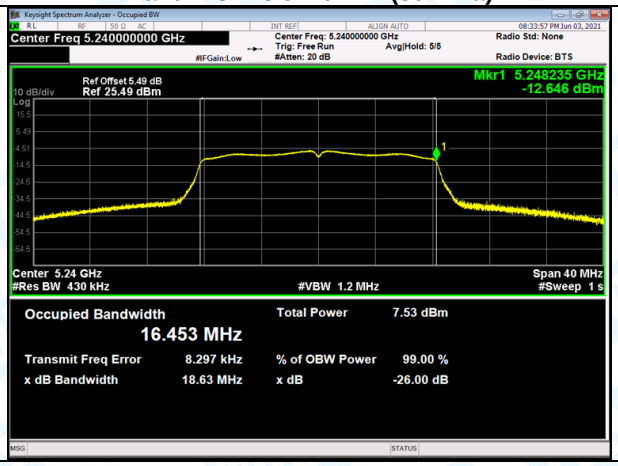
Band 1 CH36 5180MHz (802.11a)



Band 1 CH40 5200MHz (802.11a)



Band 1 CH48 5240MHz (802.11a)



Attachment C--RF Output Power Test Data

Test Conditions:	Continuous transmitting Mode		
Test Mode:	Band 1 5150-5250MHz		
Rel. Humidity:	55%	Pressure:	1010 hPa

Test Mode	Test Conditions	E.I.R.P (dBm)			Limit (dBm)	Result
		Low Channel CH 36	Mid Channel CH 40	High Channel CH 48		
802.11 a	Tnom, Vnom	**10.28**	**10.13**	**10.21**	**23**	**PASS**
	Tmin, Vnom	10.15	10.11	10.08		
	Tmax, Vnom	10.13	10.08	10.13		

Attachment D—Power Density Test Data

Test Voltage: AC 230V	**Temperature:** 25 ℃
Rel.Humidity: 55%	**Pressure:** 1010 hPa

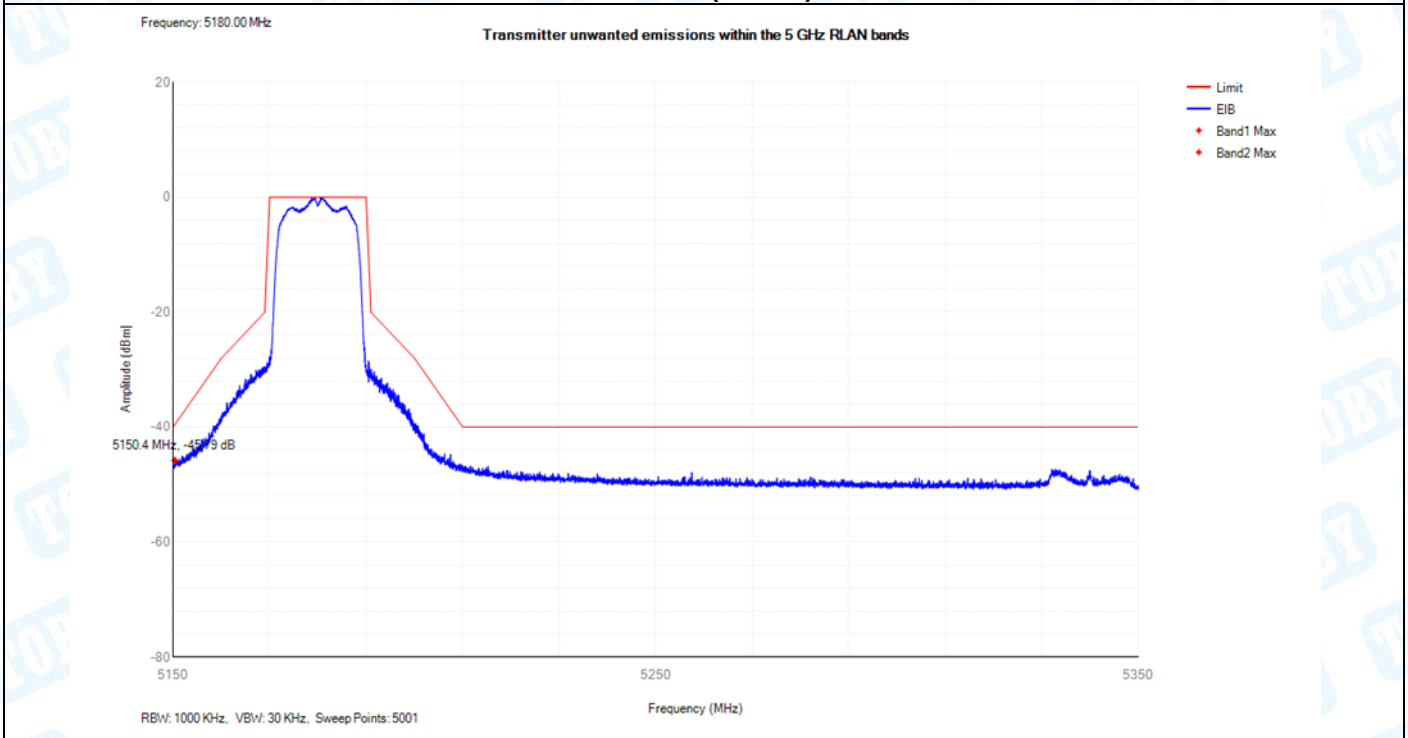
Test Conditions: Continuous transmitting mode(Band 1 5150-5250MHz)

Test Mode	EIRP Spectral Power Density (dBm / MHz)			Limit (dBm / MHz)	Result
	CH 36	CH40	CH 48		
802.11a Antenna 0+1	-0.68	-0.94	-0.81	**10**	**Pass**

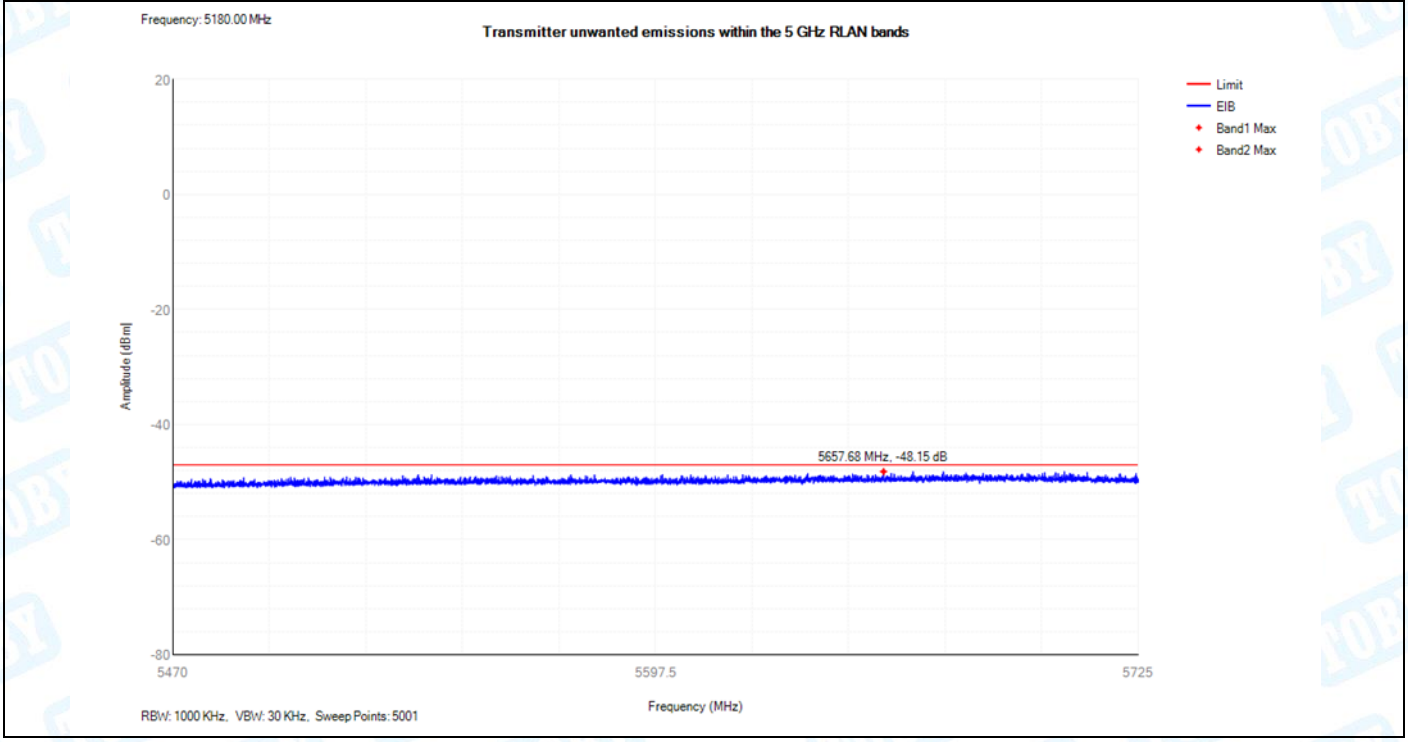
Attachment E--Transmitter Unwanted Emissions within 5 GHz RLAN Bands Test Data

Test Voltage: AC 230V	**Temperature:** 25 ℃
Rel.Humidity: 55%	**Pressure:** 1010 hPa

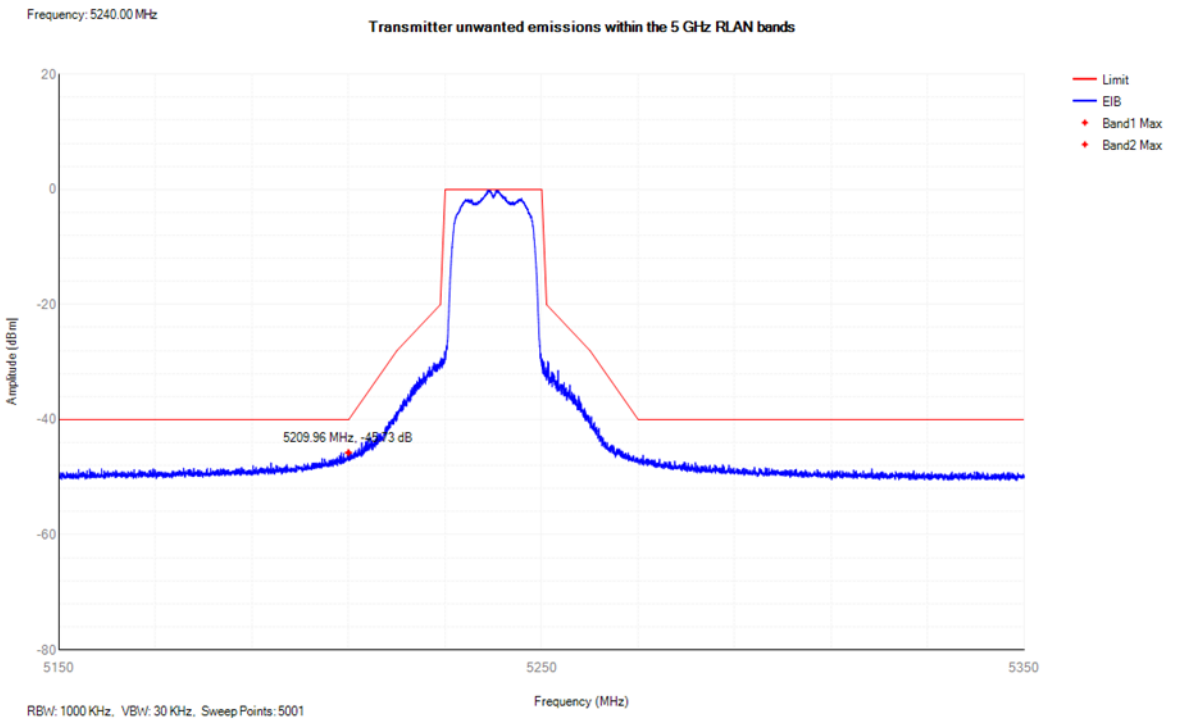
Band 1 CH36 5180MHz (802.11a) Sub Band1



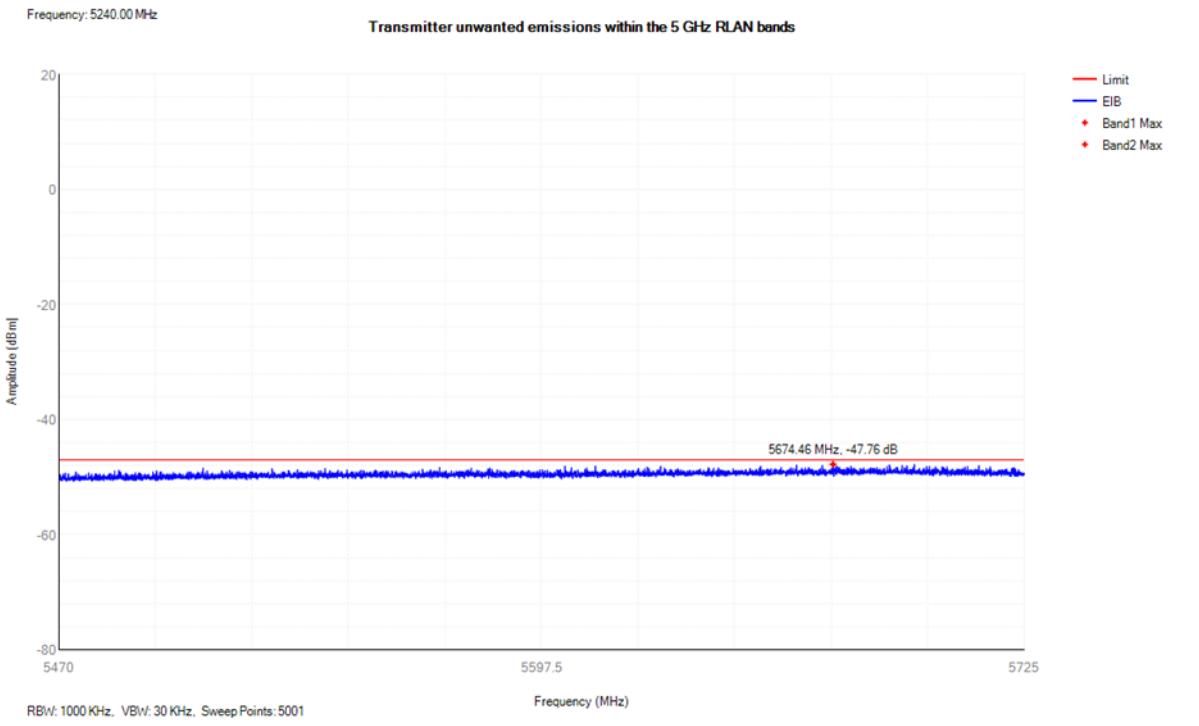
Band 1 CH36 5180MHz (802.11a) Sub Band2



Band 1 CH48 5240MHz (802.11a) Sub Band1



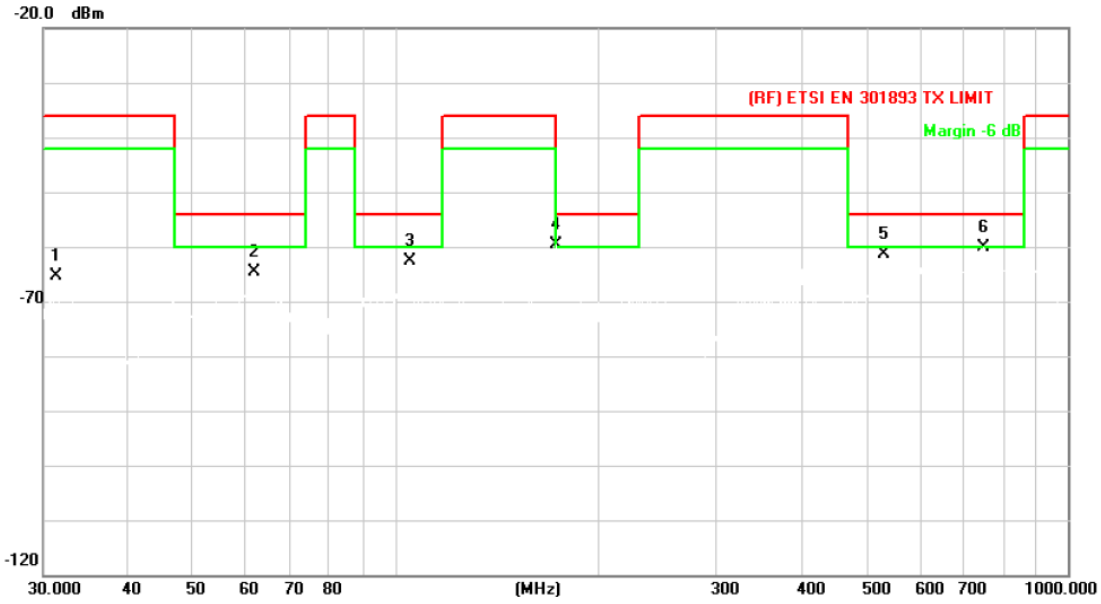
Band 1 CH48 5240MHz (802.11a) Sub Band2



Attachment F--Transmitter Unwanted Emissions Outside the 5GHz RLAN Bands Test Data

(1) Below 1 G

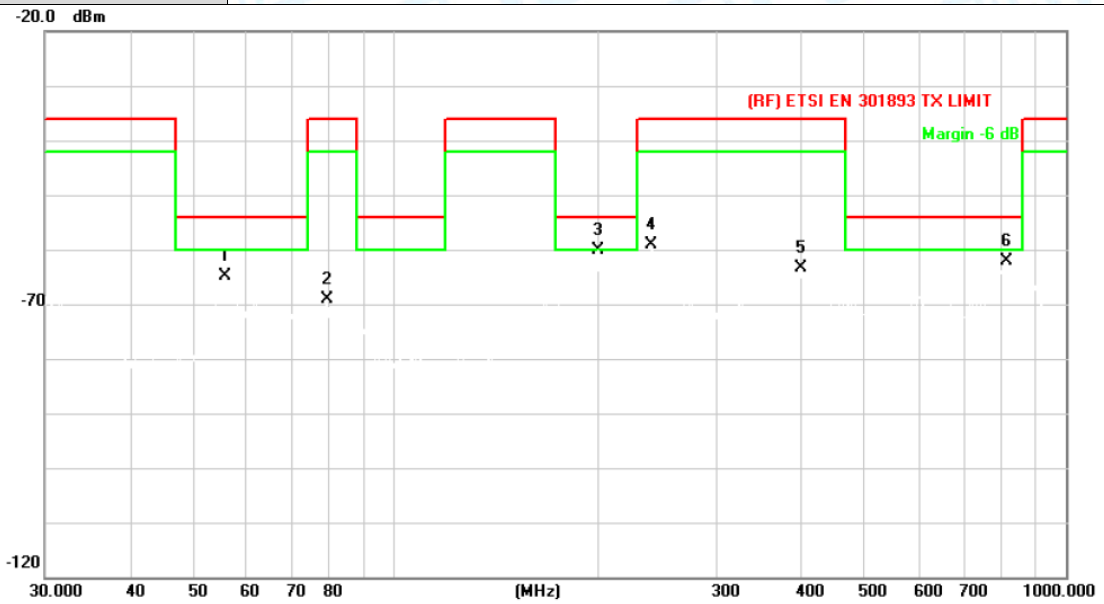
Temperature:	25℃	**Relative Humidity:**	55%
Test Voltage:	AC 230V		
Ant. Pol.	Horizontal		
Test Mode:	TX A Mode 5180MHz		
Remark:	Only show the worst case data.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBm	dB	dBm	dBm	dB	Detector
1		31.2893	-57.99	-7.37	-65.36	-36.00	-29.36	peak
2		61.7781	-50.61	-13.92	-64.53	-54.00	-10.53	peak
3		105.2716	-56.90	-5.74	-62.64	-54.00	-8.64	peak
4		173.2050	-52.86	-6.71	-59.57	-36.00	-23.57	peak
5		531.9633	-65.25	3.90	-61.35	-54.00	-7.35	peak
6	*	750.1082	-65.86	5.73	-60.13	-54.00	-6.13	peak

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Margin (dB) =Peak(dBm)-Limit (dBm)

Temperature:	25℃	Relative Humidity:	55%
Test Voltage:	AC 230V		
Ant. Pol.	Vertical		
Test Mode:	TX A Mode 5180MHz		
Remark:	Only show the worst case data.		



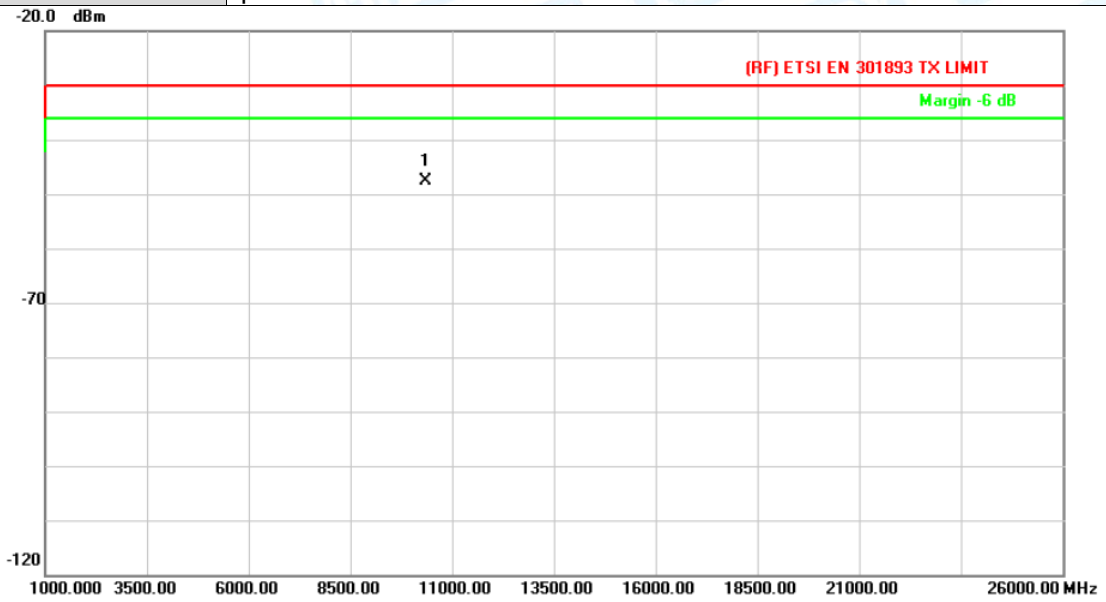
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBm	dB	dBm	dBm	dB	Detector
1		55.6094	-55.90	-8.91	-64.81	-54.00	-10.81	peak
2		78.9651	-56.89	-12.35	-69.24	-36.00	-33.24	peak
3	*	200.6879	-52.94	-7.24	-60.18	-54.00	-6.18	peak
4		240.8300	-61.94	2.88	-59.06	-36.00	-23.06	peak
5		401.8385	-64.06	0.59	-63.47	-36.00	-27.47	peak
6		815.9678	-69.57	7.47	-62.10	-54.00	-8.10	peak

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Margin (dB) =Peak(dBm)-Limit (dBm)

(2) Above 1 GHz

Only showed the worst mode test data.

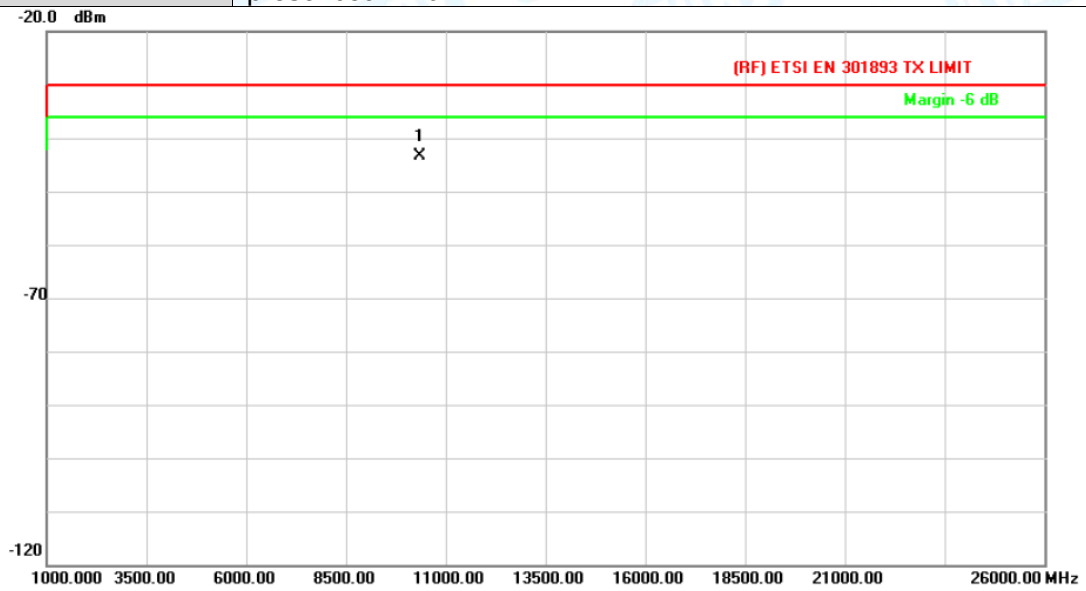
Temperature:	25℃	**Relative Humidity:**	55%
Test Voltage:	AC 230V		
Ant. Pol.	Horizontal		
Test Mode:	TX 802.11a Mode 5180MHz		
Remark:	No report for the emission which more than 15 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBm	dB	dBm	dBm	dB	Detector
1	*	10364.975	-76.45	28.83	-47.62	-30.00	-17.62	peak

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Margin (dB) =Peak(dBm)-Limit (dBm)

Temperature:	25℃	**Relative Humidity:**	55%
Test Voltage:	AC 230V		
Ant. Pol.	Vertical		
Test Mode:	TX 802.11a Mode 5180MHz		
Remark:	No report for the emission which more than 15 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBm	dB	dBm	dBm	dB	Detector
1	*	10360.374	-74.04	30.59	-43.45	-30.00	-13.45	peak

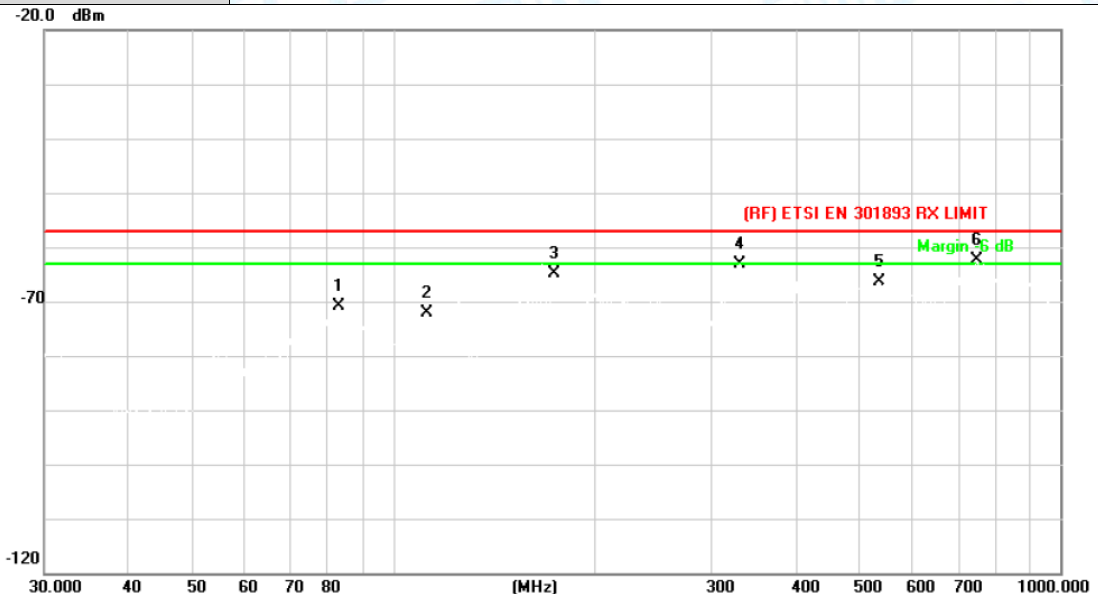
Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Margin (dB) =Peak(dBm)-Limit (dBm)

Attachment G-- Receiver Spurious Emissions Test Data

Below 1 G

Only showed the worst mode test data.

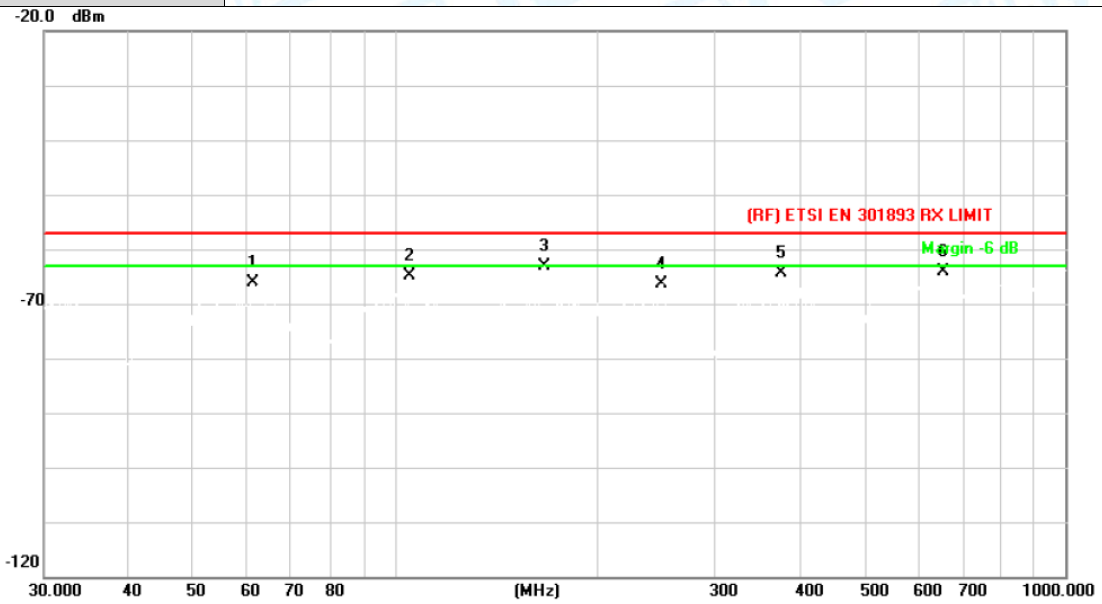
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 230V		
Ant. Pol.	Horizontal		
Test Mode:	RX A Mode 5180MHz		
Remark:	Only show the worst case data.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBm	dB	dBm	dBm	dB	Detector
1		82.9385	-58.56	-12.22	-70.78	-57.00	-13.78	peak
2		112.1303	-60.82	-11.39	-72.21	-57.00	-15.21	peak
3		174.4241	-55.45	-9.47	-64.92	-57.00	-7.92	peak
4		330.1949	-55.88	-7.31	-63.19	-57.00	-6.19	peak
5		535.7073	-65.53	-0.81	-66.34	-57.00	-9.34	peak
6	*	750.1082	-65.16	2.78	-62.38	-57.00	-5.38	peak

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Margin (dB) =Peak(dBm)-Limit (dBm)

Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 230V		
Ant. Pol.	Vertical		
Test Mode:	RX A Mode 5180MHz		
Remark:	Only show the worst case data.		



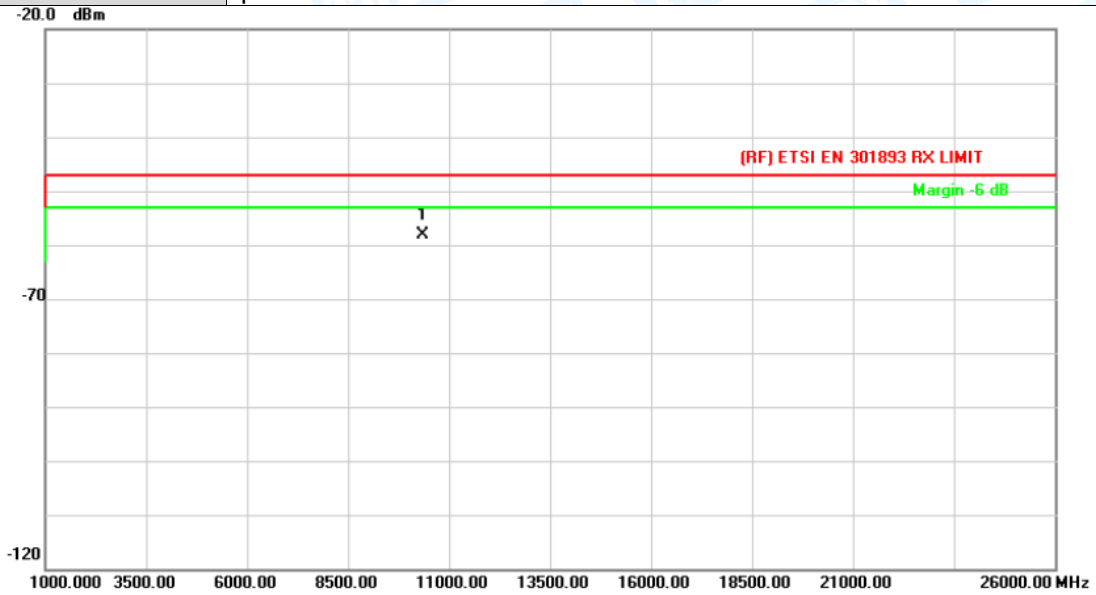
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBm	dB	dBm	dBm	dB	Detector
1		61.3462	-52.08	-13.98	-66.06	-57.00	-9.06	peak
2		105.2716	-59.21	-5.74	-64.95	-57.00	-7.95	peak
3	*	167.2366	-55.39	-7.63	-63.02	-57.00	-6.02	peak
4		249.4250	-59.19	-7.29	-66.48	-57.00	-9.48	peak
5		377.2590	-63.02	-1.31	-64.33	-57.00	-7.33	peak
6		656.5298	-66.30	2.29	-64.01	-57.00	-7.01	peak

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Margin (dB) =Peak(dBm)-Limit (dBm)

Above 1 GHz

Only showed the worst mode test data.

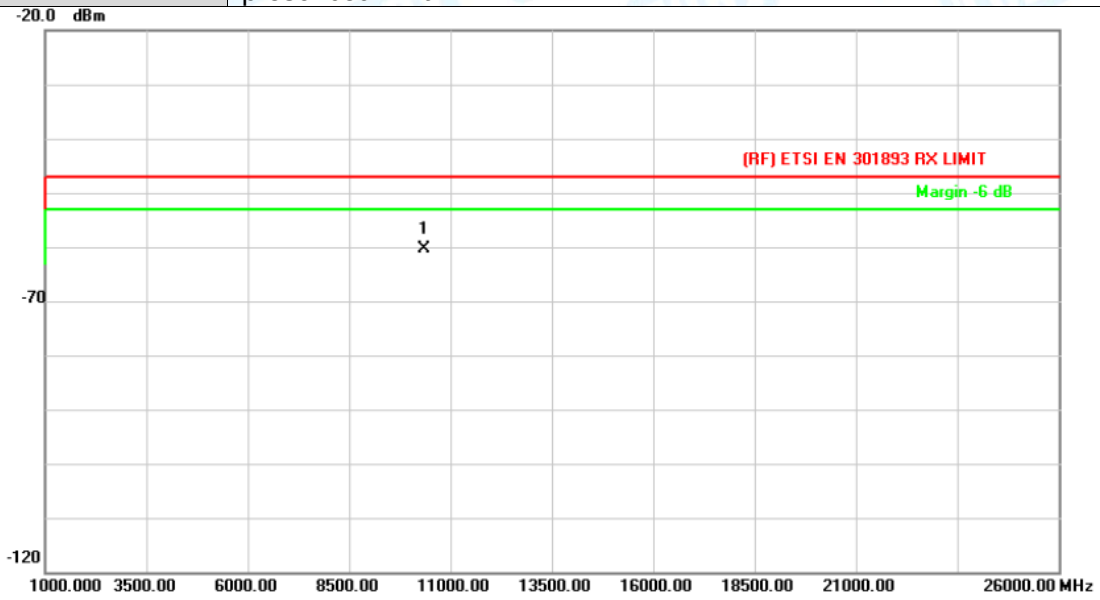
Temperature:	25℃	**Relative Humidity:**	55%
Test Voltage:	AC 230V		
Ant. Pol.	Horizontal		
Test Mode:	RX 802.11a Mode 5180MHz		
Remark:	No report for the emission which more than 15 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBm	dB	dBm	dBm	dB	Detector
1	*	10359.790	-37.10	-21.04	-58.14	-47.00	-11.14	peak

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Margin (dB) =Peak(dBm)-Limit (dBm)

Temperature:	25℃	**Relative Humidity:**	55%
Test Voltage:	AC 230V		
Ant. Pol.	Vertical		
Test Mode:	RX 802.11a Mode 5180MHz		
Remark:	No report for the emission which more than 15 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBm	dB	dBm	dBm	dB	Detector
1	*	10360.256	-39.24	-21.04	-60.28	-47.00	-13.28	peak

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Margin (dB) =Peak(dBm)-Limit (dBm)

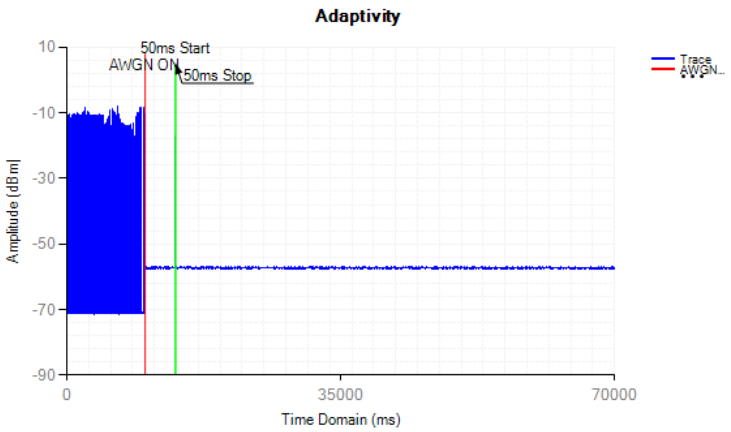
Attachment H--Adaptivity Test Data

Detection Threshold Level	
Load Based Equipment	Option 1 for Multi-Channel Operation
Option 1: TL = -75dBm/MHz(assumes a 0dBi receive antenna)	
Single antenna Gain(G): 2.0dBi	☒ at the antenna connector ☐ in front of the antenna
The worst ED Threshold level (TL)=-75dBm/MHz+ G (2.0dBi) =-73dBm/MHz	

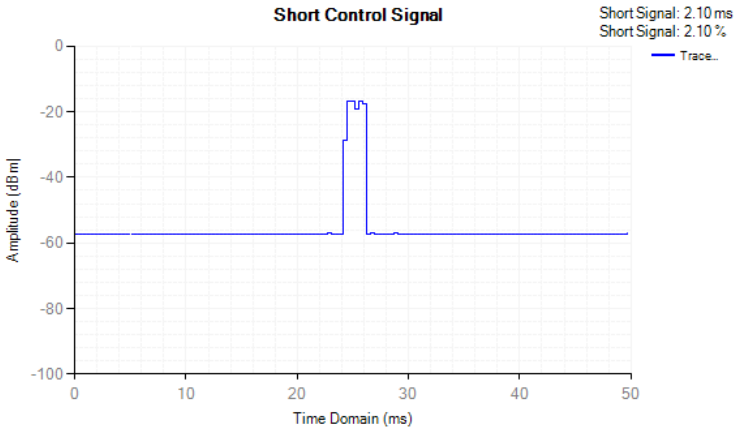
Adaptivity

Mode	Frequency (MHz)	Interfer Type	Interfer Level (dBm/MHz)	Short Control (ms)	Limit (ms)	Short Control (n)	Limit (n)	Verdict
802.11a	5180	AWGN	73	2.1	**<=2.5**	1	**<=50**	**Pass**
802.11a	5180	LTE	73	0	**<=2.5**	0	**<=50**	**Pass**
802.11a	5180	OFDM	73	0.7	**<=2.5**	1	**<=50**	**Pass**

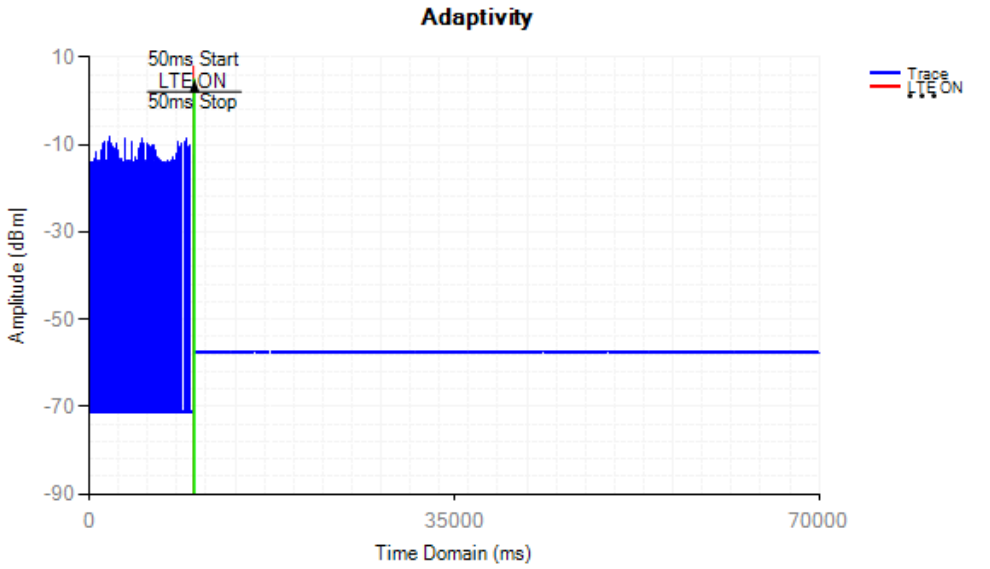
Adaptivity NVNT a 5180MHz AWGN



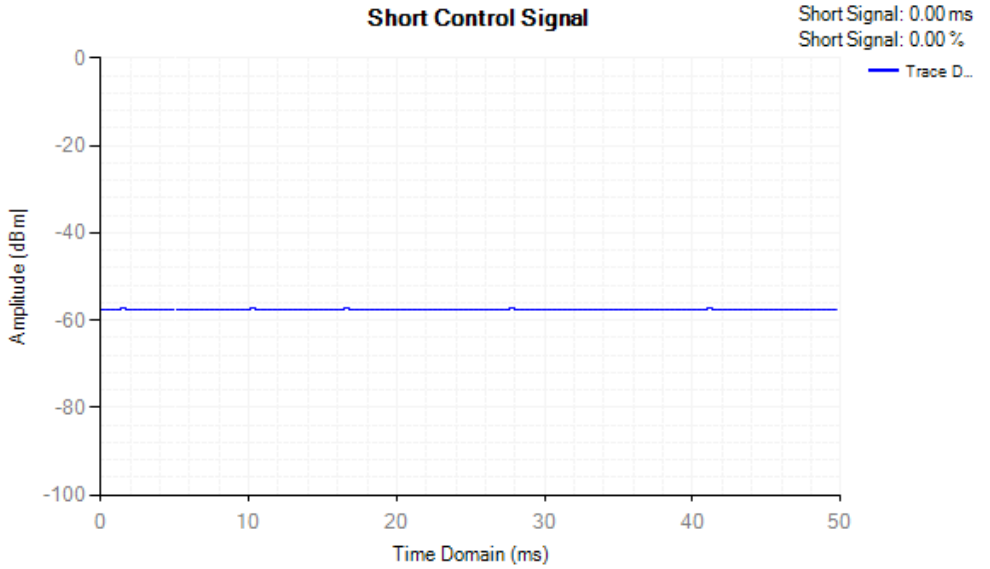
Control Signal NVNT a 5180MHz AWGN



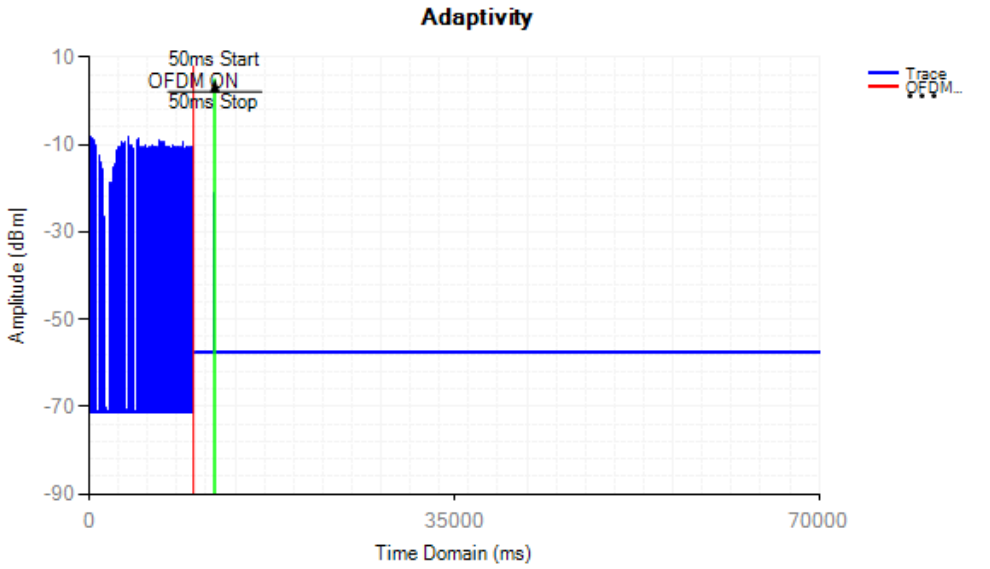
Adaptivity NVNT a 5180MHz LTE



Control Signal NVNT a 5180MHz LTE



Adaptivity NVNT a 5180MHz OFDM

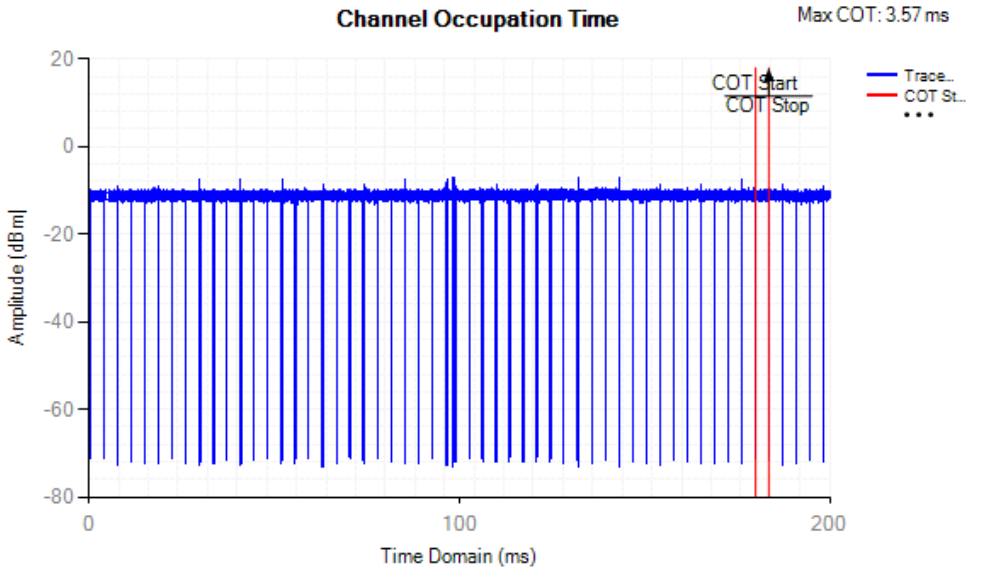


Control Signal NVNT a 5180MHz OFDM

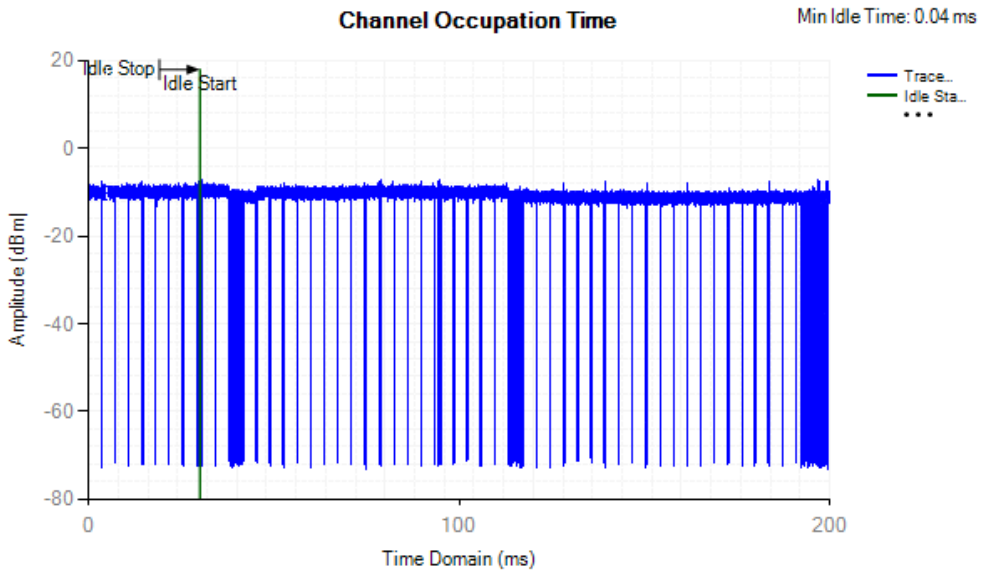
Adaptivity CoT Channel Occupancy Time

Mode	Frequency (MHz)	Priority Class	Max COT (ms)	Limit COT (ms)	Min Idle Time (ms)	Limit Idle Time (ms)	Verdict
802.11a	5180	3	1.28	**<=4**	0.030	**>0.027**	**Pass**

COT NVNT 802.11a 5180MHz



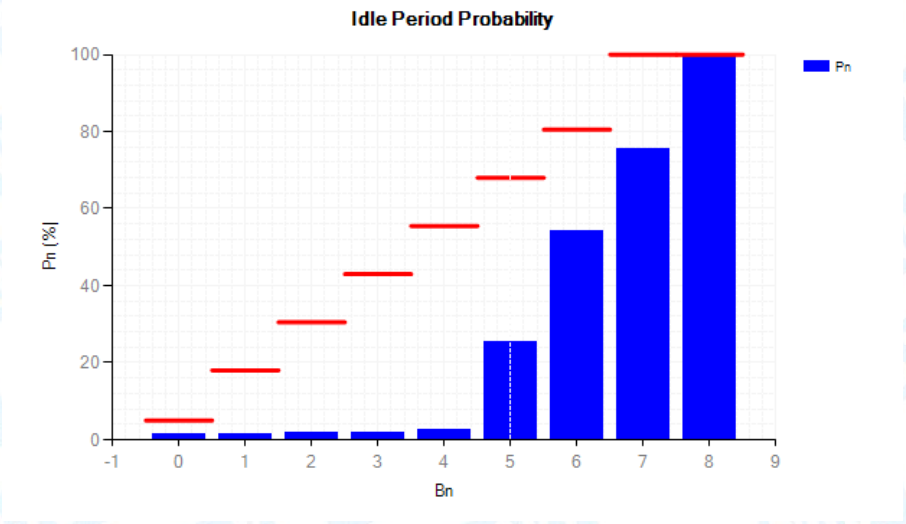
Idle NVNT 802.11a 5180MHz



Adaptivity Cot Idle Period Probability

Mode	Frequency (MHz)	Priority Class	Bn	H(Bn)	Pn (%)	Limit (%)	Verdict
802.11a	5180	3	0	16	1.55	5	**Pass**
802.11a	5180	3	1	0	1.55	18	**Pass**
802.11a	5180	3	2	2	1.74	30.5	**Pass**
802.11a	5180	3	3	2	1.93	43	**Pass**
802.11a	5180	3	4	5	2.42	55.5	**Pass**
802.11a	5180	3	5	236	25.24	68	**Pass**
802.11a	5180	3	6	300	54.26	80.5	**Pass**
802.11a	5180	3	7	220	75.53	100	**Pass**
802.11a	5180	3	8	253	100	100	**Pass**

Idle Period Probability NVNT 802.11a 5180MHz



Attachment I--Receiver Blocking Test Data

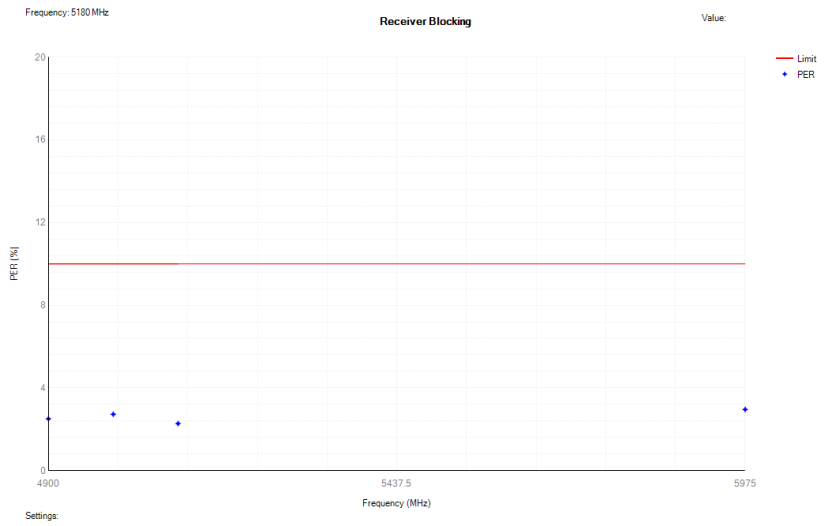
Band	Mode	Frequency (MHz)	P_{min} (dBm)	Wanted Power (dBm)	Blocking Frequency (MHz)	Blocking Power (dBm)	PER (%)	Limit (%)	Verdict
Band 1	802.11a	5180	-60	P_{min}+6	5100	-57	2.49	10	Pass
	802.11a	5180	-60	P_{min}+6	4900	-51	2.68	10	Pass
	802.11a	5180	-60	P_{min}+6	5000	-51	2.91	10	Pass
	802.11a	5180	-60	P_{min}+6	5975	-51	3.24	10	Pass
	802.11a	5240	-60	P_{min}+6	5100	-57	2.38	10	Pass
	802.11a	5240	-60	P_{min}+6	4900	-51	2.52	10	Pass
	802.11a	5240	-60	P_{min}+6	5000	-51	2.81	10	Pass
	802.11a	5240	-60	P_{min}+6	5975	-51	3.06	10	Pass

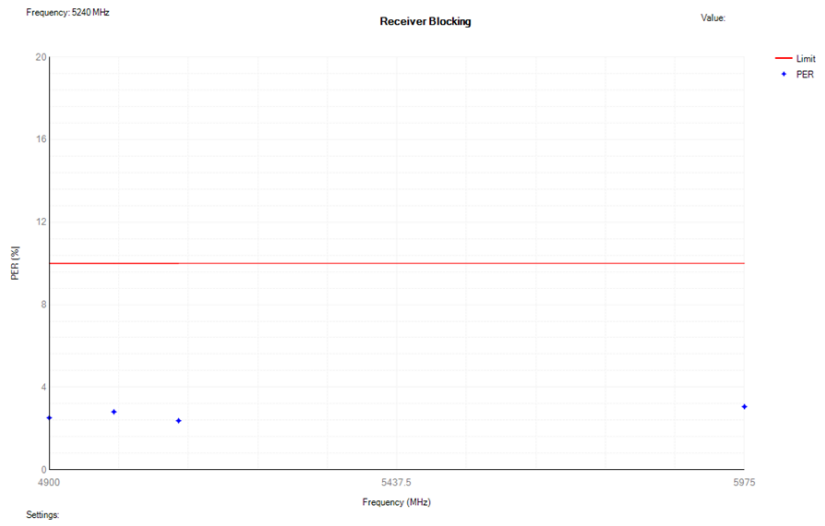
*communication link is established between the UUT and the associated companion device using the test setup shown in figure 6. While the Companion device (CMW500) adjust to a level which can obtain the minimum performance criteria PER 10%,This level define to P_{min}.

Remark: the smallest channel bandwidth shall be used together with the lowest data rate for this channel bandwidth. This mode of operation are aligned with the performance criteria defined in clause 4.3.1.12.3 or clause 4.3.2.11.3 as declared by the manufacturer (see clause 5.4.1.t)).

The product is Master Device, Only show the worst case data.

Rx. Blockings NVNT 802.11a 5180MHz





-----END OF REPORT-----