Shenzhen Huatongwei International Inspection Co., Ltd.
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TEST REPORT

Report No. ..... :	**CHTEW19010089**	Report verification :
Project No. ..... :	**SHT1812025502EW**	
Applicant's Name..... :	**Kern & Sohn GmbH**	
Address.....:	Ziegelei 1 Balingen Germany zip:72336	
Manufacturer.....:	Kern & Sohn GmbH	
Address.....:	Ziegelei 1 Balingen Germany zip:72336	
Test Item Description ..... :	Interface Box	
Trade Mark .....:	KERN	
Model/Type Reference .....:	YKV-02	
Listed Model(s) .....:	YKV-01	
Standard ..... :	**ETSI EN 300 328 V2.1.1: 2016-11**	
Date of Receipt of Test Sample……:	Dec.25,2018	
Date of Testing……..:	Dec.25,2018 ~ Jan.17,2019	
Date of Issue……....:	Jan.18,2019	
Result.....……..:	**PASS**	

Compiled by (position+printed name+signature)..:	File administrators Yueming Li	Yueming.Li
Supervised by (position+printedname+signature)...:	Project Engineer Jerry Zhao	Jerry zhao
Approved by (position+printedname+signature)...:	RF Manager Hans Hu	HansHU

Testing Laboratory Name ..... :	**Shenzhen Huatongwei International Inspection Co., Ltd.**
Address.....:	1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

Contents

1. Test Standards and Report Version

1.1. Test Standards

The tests were performed according to following standards:

ETSI EN 300 328V2.1.1(2016-11)–Wideband transmission systems;Data transmission equipment operatingin the 2,4 GHz ISM band and using wide band modulation techniques;Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

1.2. Report Version Information

Revision No.	Date of Issue	Description
N/A	2019-01-18	Original

2. Test Description

Radio Spectrum Matter (RSM) Part of Transmitter			
Test Item	**Test require**	**Result**	**Test Enigeer**
RF Output Power	clause 4.3.2.2	Pass	Xiaokang Tan
Power Spectral Density	clause 4.3.2.3	Pass	Xiaokang Tan
Duty Cycle, Tx-sequence, Tx-gap	clause 4.3.2.4	N/A	N/A
Medium Utilisation (MU) Factor	clause 4.3.2.5	N/A	N/A
Adaptivity	clause 4.3.2.6	Pass	Xiaokang Tan
Occupied Channel Bandwidth	clause 4.3.2.7	Pass	Xiaokang Tan
Transmitter Unwanted Emissions in the Out-of-band Domain	clause 4.3.2.8	Pass	Xiaokang Tan
Transmitter Unwanted Emissions in the Spurious Domain	clause 4.3.2.9	Pass	Xiaokang Tan
Radio Spectrum Matter (RSM) Part of Receiver			
Test Item	**Test require**	**Result**	**Test Enigeer**
Receiver Spurious Emissions	clause 4.3.2.10	Pass	Shower.dai
Receiver Blocking	clause 4.3.2.11	Pass	Shower.dai
Geo-location Capability	clause 4.3.2.12	N/A	N/A

Note:

1. The measurement uncertainty is not included in the test result.
2. N/A: means this test item is not applicable for this device according to the technology characteristic of device.

3. Summary

3.1. Client Information

Applicant:	Kern & Sohn GmbH
Address:	Ziegelei 1 Balingen Germany zip:72336
Manufacturer:	Kern & Sohn GmbH
Address:	Ziegelei 1 Balingen Germany zip:72336

3.2. Product Description

Name of EUT:	Interface Box
Trade Mark:	KERN
Model/Type Reference:	YKV-02
Listed Model(s):	YKV-01
Power Supply:	DC 5V From USB
Adapter Information:	-
Hardware Version:	REV:0D1
Software Version:	REV:1.0.0

Technical Index for WIFI			
Supported Type:	☒802.11b	☒802.11g	☒802.11n(HT20)
Modulation:	DSSS for 802.11b OFDM for 802.11g/802.11n(HT20)		
Operation Frequency:	2412MHz~2472MHz for 802.11b/802.11g/802.11n(HT20)		
Channel Number:	13 for 802.11b/802.11g/802.11n(HT20)		
Channel Separation:	5MHz		
Test Frequency:	CH01: 2412MHz	CH07: 2442MHz	CH13: 2472MHz
Modulation:	☐ FHSS	☒ Other forms of modulation	
Type of Equipment:	☒ Stand-alone	☐ Combined Equipment	
	☐ Plug-in radio device	☐ Other	
Adaptive / Non-adaptive Equipment:	☐ non-adaptive Equipment		
	☒ adaptive Equipment without the possibility to switch to a non-adaptive mode		
	☐ adaptive Equipment which can also operate in a non-adaptive mode		
Receiver Categories:	☒ Adaptive equipment with a maximum RF output power greater than 10 dBm e.i.r.p. shall be considered as receiver category 1 equipment.		
	☐ Non-adaptive equipment with a Medium Utilization (MU) factor greater than 1 % and less than or equal to 10 % or adaptive equipment with a maximum RF output power of 10 dBm e.i.r.p. shall be considered as receiver category 2 equipment.		
	☐ Non-adaptive equipment with a maximum Medium Utilization (MU) factor of 1 % or adaptive equipment with a maximum RF output power of 0 dBm e.i.r.p. shall be considered as receiver category 3 equipment.		
Operating Mode:	☒ Single Antenna Equipment		
	☒ Equipment with only 1 antenna		
	☐ Equipment with 2 diversity antennas but only 1 antenna active at any moment in time		
	☐ Smart Antenna Systems with 2 or more antennas, but operating in a (legacy) mode where only 1antenna is used.		
	☐ Smart Antenna Systems - Multiple Antennas without beam forming		
	☐ Single spatial stream / Standard throughput		
	☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1		
	☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2		
	☐ Smart Antenna Systems - Multiple Antennas with beam forming		
	☐ Single spatial stream / Standard throughput		
	☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1		
	☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2		
Antenna Type:	☒ PCB Antenna		
	☒ Temporary RF connector provided		
	☐ No temporary RF connector provided		
	Antenna Gain: ....2.00.... dBi		
	Beamforming gain: .....dB		
	☐ Dedicated Antennas (equipment with antenna connector)		
	☐ Single power level with corresponding antenna(s)		
	☐ Multiple power settings and corresponding antenna(s)		
	Number of different Power Levels:		
	Power Level 1: ..... dBm		
	Power Level 2: ..... dBm		
	Power Level 3: ..... dBm		

Information is Provided by the Supplier	
☐In case of FHSS Modulation:	☐ In case of non-Adaptive Frequency Hopping equipment: The number of Hopping Frequencies: ……..
	☐ In case of Adaptive Frequency Hopping Equipment: The maximum number of Hopping Frequencies: …….. The minimum number of Hopping Frequencies: ……..
	The Dwell Time: ……..
	The Minimum Channel Occupation Time: ……..
☒In case of Adaptive Equipment:	The Channel Occupancy Time implemented by the equipment:../.. ms
	☒ The equipment has implemented an LBT based DAA mechanism In case of equipment using modulation different from FHSS: ☐ The equipment is Frame Based equipment ☒ The equipment is Load Based equipment ☐ The equipment can switch dynamically between Frame Based and Load Based equipment The CCA time implemented by the equipment: .... µs
	☐ The equipment has implemented an non-LBT based DAA mechanism
	☐ The equipment can operate in more than one adaptive mode
☐In case of Non-adaptive Equipment	The maximum RF Output Power (e.i.r.p.): ……. dBm The maximum (corresponding) Duty Cycle: ……. %

The worst case operational mode for each of the following tests:	
RF Output Power	Reference to section 5.1
Occupied Channel Bandwidth	Reference to section 5.3
Transmitter Unwanted Emissions in the OOB Domain	Reference to section 5.4
Transmitter Unwanted Emissions in the Spurious Domain	Reference to section 5.5
Receiver Spurious Emissions	Reference to section 5.5
☐ FHSS	
Dwell time:	
Minimum Frequency Occupation:	
Hopping Sequence:	
Hopping Frequency Separation	
☒ Other	
Power Spectral Density:	Reference to section 5.2
☒ Adaptive Equipment	
Adaptivity:	Reference to section 5.7
Receiver Blocking:	Reference to section 5.8
☐ Non-adaptive Equipment	
Duty cycle:	
Tx-Sequence:	
Tx-gap:	
Medium Utilisation:	

3.3. EUT Operation Mode

The EUT has been tested under typical operating condition. The Applicant provides software to control the EUT for staying in continuous transmitting and receiving mode for testing.

3.4. EUT Configuration

The following peripheral devices and interface cables were connected during the measurement:

- ● - supplied by the manufacturer
- ○ - supplied by the lab

		Manufacturer :	/
		Model No. :	/
		Manufacturer :	/
		Model No. :	/

3.5. Modifications

No modifications were implemented to meet testing criteria.

4. Test Environment

4.1. Address of the Test Laboratory

Laboratory: Shenzhen Huatongwei International Inspection Co., Ltd.
Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China
Phone: 86-755-26748019 Fax: 86-755-26748089

4.2. Test Facility

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

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 3902.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 762235

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 762235.

IC-Registration No.: 5377B-1

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377B-1.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

4.3. Environmental Conditions

Normal Condition	Temperature	15 °C to +35 °C
	Relative humidity	20 % to 75 %.
	Voltage	the equipment shall be the nominal voltage for which the equipment was designed.
Extreme Condition	Temperature	Measurements shall be made over the extremes of the operating temperature range as declared by the manufacturer
	Voltage	Measurements shall be made over the extremes of the operating voltage range as declared by the manufacturer

Normal Condition	T_N=Normal Temperature	25 °C
Extreme Condition	T_L=Lower Temperature	-20 °C
	T_H=Higher Temperature	55 °C

4.4. Statement of the Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors in calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to TR-100028-01 “Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics;Part 1” and TR-100028-02 “Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurementof mobile radio equipment characteristics;Part 2” and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system according to ISO/IEC 17025. Further more, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Here after the best measurement capability for Shenzhen Huatongwei is reported:

Test Items	Measurement Uncertainty	Notes
Frequency range	69 Hz	(1)
Occupied Bandwidth	69 Hz	(1)
Transmitter power conducted	0.63 dB	(1)
Power Spectral Density	0.63 dB	(1)
Conducted spurious emissions 9kHz~40GHz	0.63 dB	(1)
Radiated spurious emissions	2.38dB for <1GHz 3.45dB for >1GHz	(1)
Blocking	2.20 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

4.5. Equipments Used During the Test

R&S TS8997 Test system						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. (mm-dd-yy)	Next Cal. (mm-dd-yy)
1	Spectrum analyzer	R&S	FSV40	100048	10/28/2018	10/27/2019
2	Signal generator	R&S	SMB100A	177956	10/28/2018	10/27/2019
3	Vector signal generator	R&S	SMBV100A	260790	07/20/2018	07/20/2019
4	OSP	R&S	OSP120	101317	N/A	N/A
6	Wideb.Radio Comm.Tester	R&S	CMW500	1201.0002K50-154898-he	10/28/2018	10/27/2019
7	10dB Attenuator	R&S	10dB Attenuator-1	N/A	11/15/2018	11/14/2019
8	10dB Attenuator	R&S	10dB Attenuator-2	N/A	11/15/2018	11/14/2019
9	10dB Attenuator	R&S	10dB Attenuator-3	N/A	11/15/2018	11/14/2019
10	10dB Attenuator	R&S	10dB Attenuator-4	N/A	11/15/2018	11/14/2019
11	Temperature and Humidity Meter	MINGLE	RH100	N/A	10/30/2018	10/29/2019

Radiated Method						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. (mm-dd-yy)	Next Cal. (mm-dd-yy)
1	Semi-Anechoic Chamber	Albatross projects	SAC-3m-01	C11121	10/16/2016	10/15/2019
2	EMI Test Receiver	R&S	ESCI	100900	10/28/2018	10/27/2019
3	Loop Antenna	R&S	HFH2-Z2	100020	11/20/2017	11/19/2020
4	Ultra-Broadband Antenna	SCHWARZBECK	VULB9163	538	04/05/2017	04/04/2020
5	Preamplifier	BONN	BLWA0160-2M	1811887	11/14/2018	11/13/2019
6	Preamplifier	SCHWARZBECK	BBV 9743	9743-0022	10/17/2018	10/16/2019
7	RF Connection Cable	HUBER+SUHNER	RE-7-FL	N/A	11/15/2018	11/14/2019
8	Test Software	R&S	ES-K1	N/A	N/A	N/A
9	Spectrum Analyzer	R&S	FSP40	100597	10/27/2018	10/26/2019
10	Horn Antenna	SCHWARZBECK	9120D	1011	03/27/2017	03/26/2020
11	Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-248	04/28/2018	04/27/2019
12	RF Connection Cable	HUBER+SUHNER	RE-7-FH	N/A	11/15/2018	11/14/2019
13	Test Software	Audix	E3	N/A	N/A	N/A
14	Turntable	Maturo Germany	TT2.0-1T	N/A	N/A	N/A
15	Antenna Mast	Maturo Germany	CAM-4.0-P-12	N/A	N/A	N/A
16	Temperature and Humidity Meter	MINGLE	YH101	N/A	10/30/2018	10/29/2019

5. Test Conditions and Results

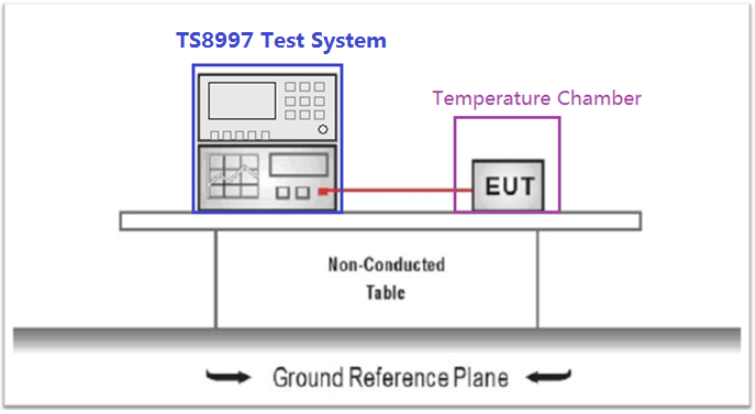
5.1. RF Output Power

LIMIT

ETSI EN 300 328 Sub-clause 4.3.2.2.3

- For adaptive equipment using wide band modulations other than FHSS, the maximum RF output power shall be20 dBm
- The maximum RF output power for non-adaptive equipment shall be declared by the supplier and shall not exceed20 dBm. For non-adaptive equipment using wide band modulations other than FHSS, themaximum RF output power shall be equal to or less than the value declared by the supplier

TEST CONFIGURATION



TEST PROCEDURE

1. The test conditions.

☒Normal condition ☒Extreme conditions

2. Please refer to ETSI EN 300 328 Sub-clause 5.4.2.2.1 for the measurement method.

TEST MODE:

Continuously transmitting at the lowest, the middle, and the highest channel

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

Test conditions	Channel	EIRP(dBm)			Limit (dBm)	Result
Temperature (°C)		802.11b	802.11g	802.11n (HT20)		
T_N	CH01	14.56	13.19	12.39	20.00	Pass
	CH07	14.21	12.47	11.71		
	CH13	13.15	11.94	10.57		
T_L	CH01	15.09	13.85	12.88		
	CH07	14.21	12.54	12.55		
	CH13	13.80	12.51	11.43		
T_H	CH01	13.72	12.95	11.61		
	CH07	13.57	12.40	11.17		
	CH13	12.78	11.29	10.38		

Note:

1) Test bursts: 105.

2) Measured Power(EIRP) include the cable loss and antenna gain.

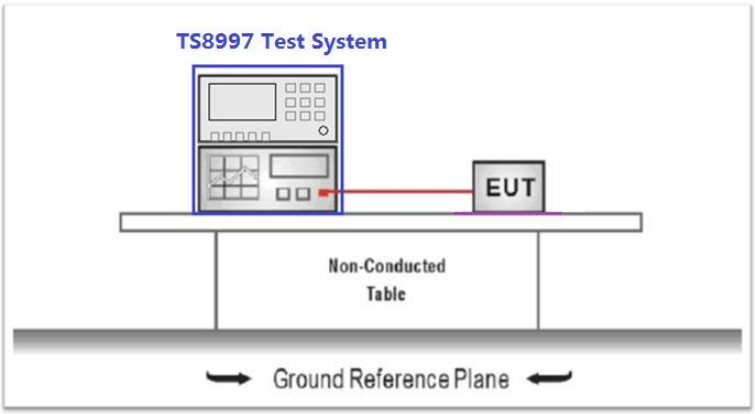
5.2. Power Spectral Density

LIMIT

ETSI EN 300 328Sub-clause 4.3.2.3.3

For equipment using wide band modulations other than FHSS, the maximum Power Spectral Density is limited to10 dBm per MHz.

TEST CONFIGURATION



TEST PROCEDURE

1. The test conditions.

☒Normal condition ☐Extreme conditions

2. Please refer to ETSI EN 300 328 Sub-clause5.4.3.2.1 for the measurement method.

TEST MODE:

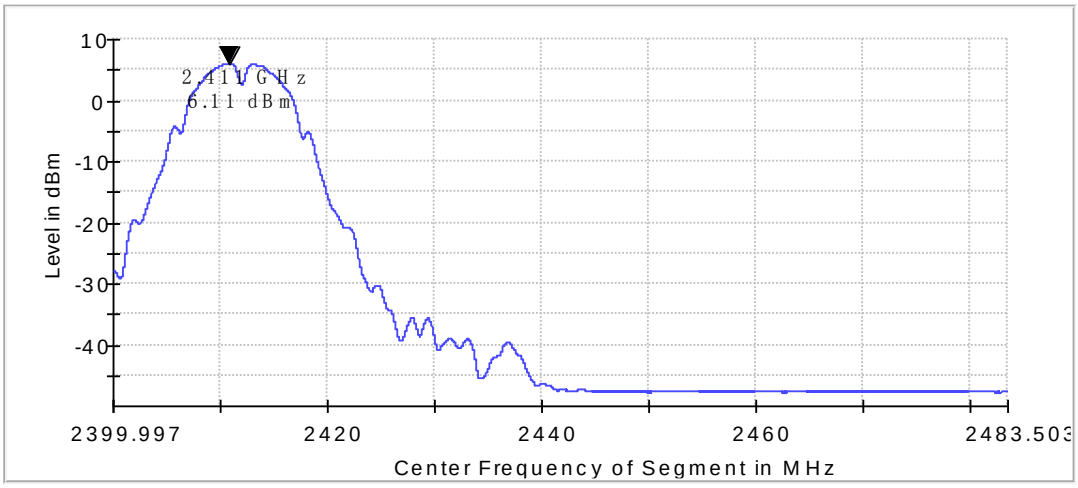
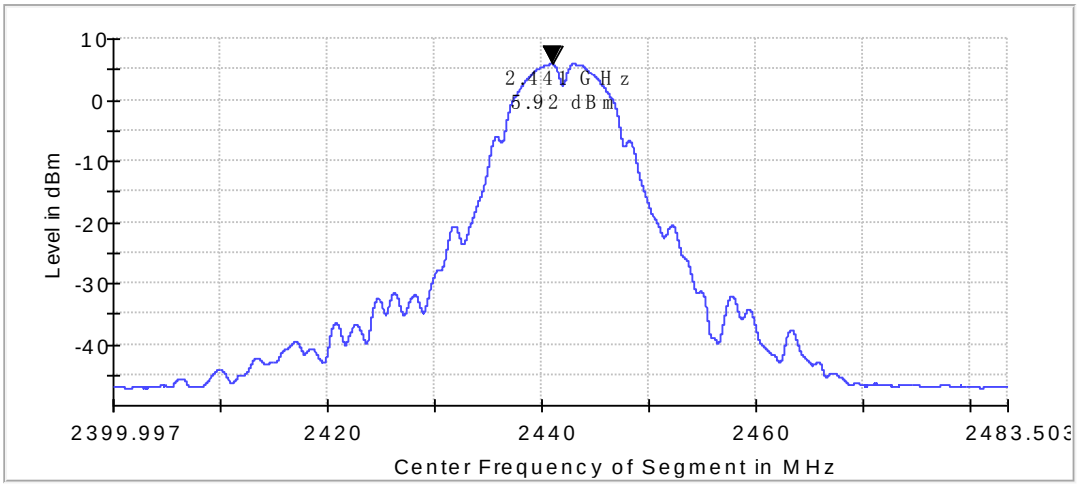
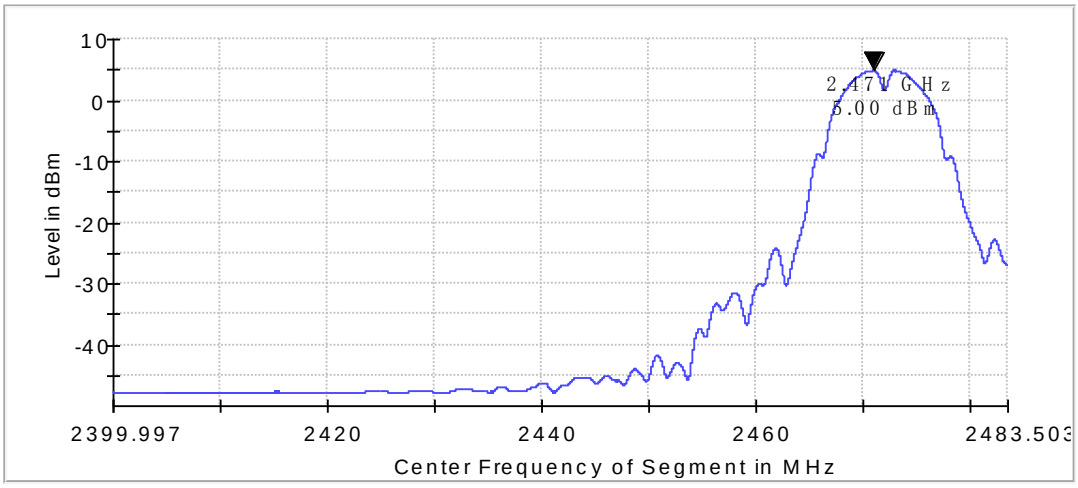
Continuously transmitting at the lowest, the middle, and the highest channel

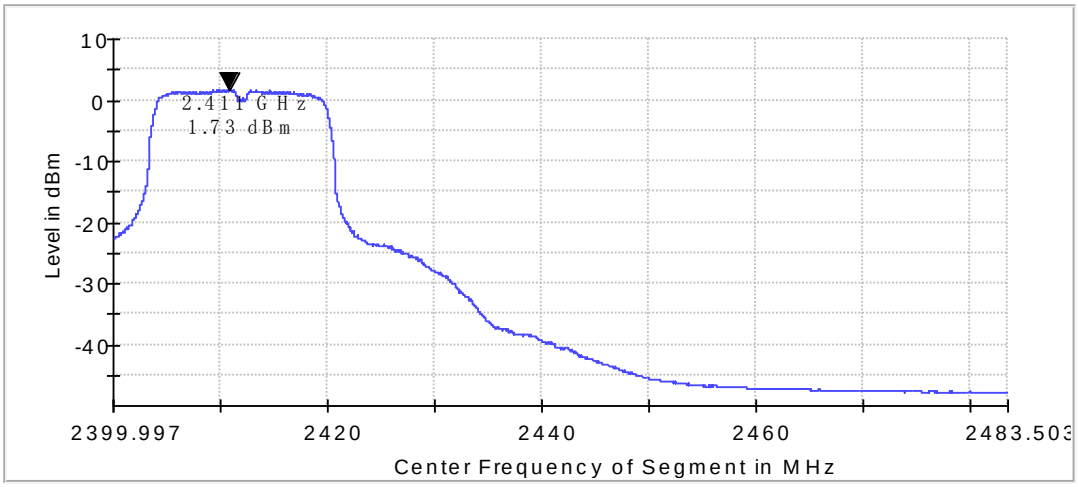
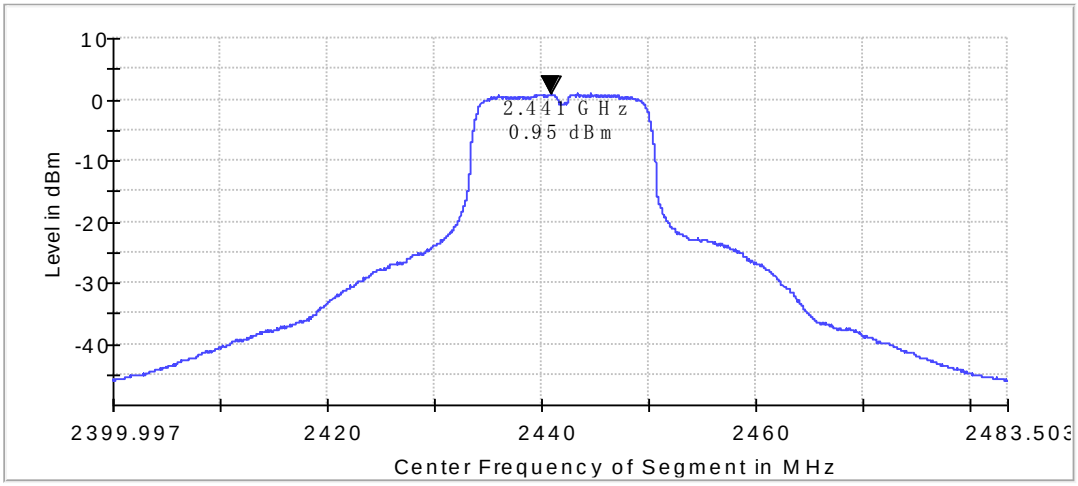
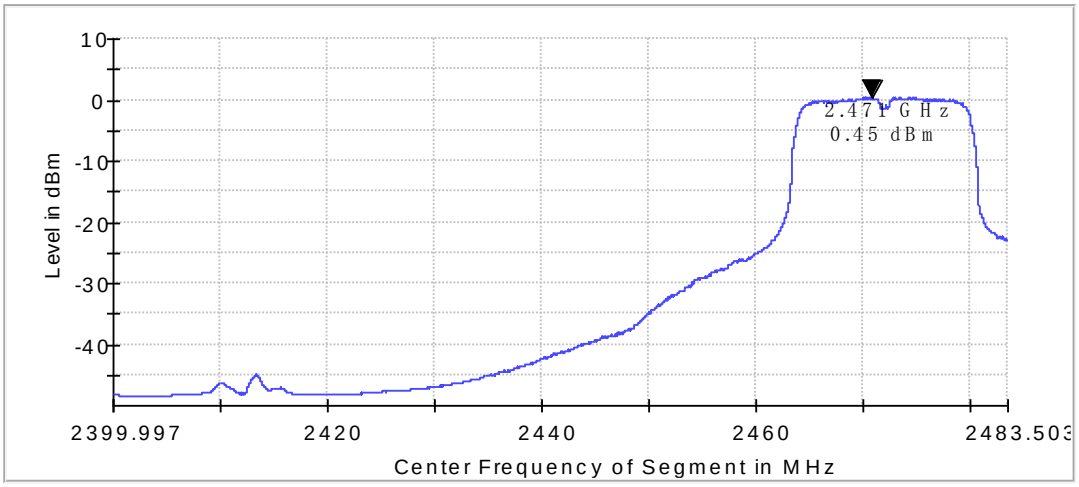
TEST RESULTS

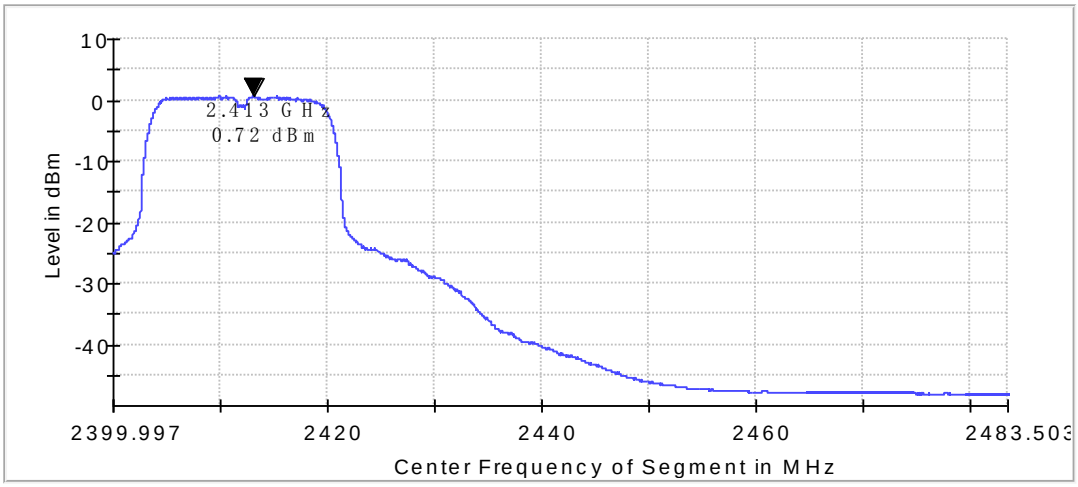
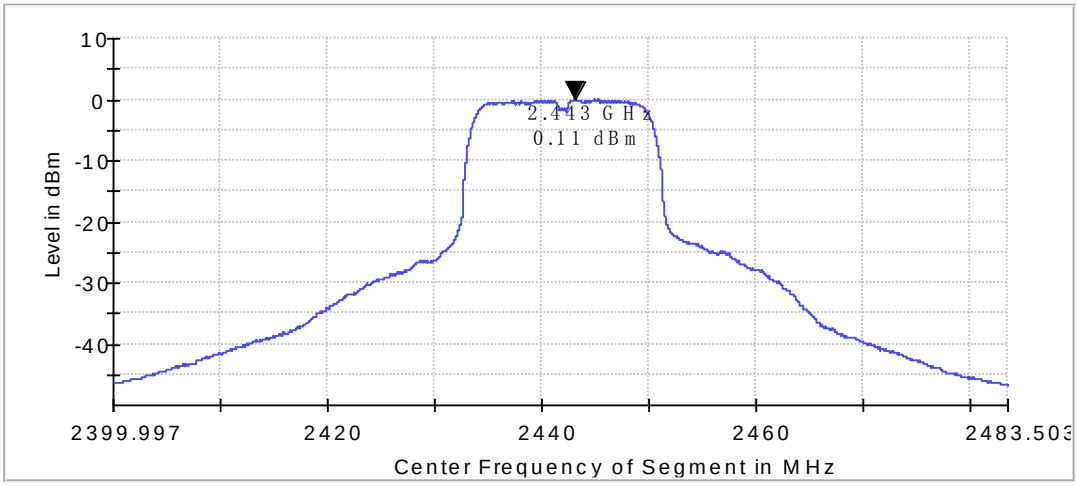
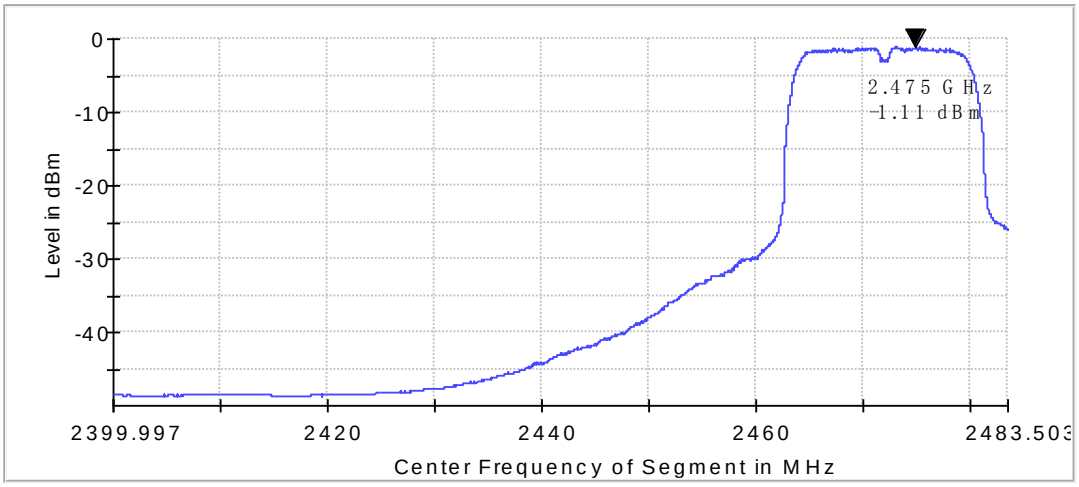
☒ **Passed** ☐ **Not Applicable**

Channel	Power Spectral Density (dBm/MHz)			Limit (dBm)	Result
	802.11b	802.11g	802.11n (HT20)		
CH01	6.11	1.73	0.72	10.00	Pass
CH07	5.92	0.95	0.11		
CH13	5.00	0.45	-1.11		

Test plot as follows:

802.11b	
CH01:	
CH07:	
CH13:	

802.11g	
CH01:	
CH07:	
CH13:	

802.11n(HT20)	
CH01:	
CH07:	
CH13:	

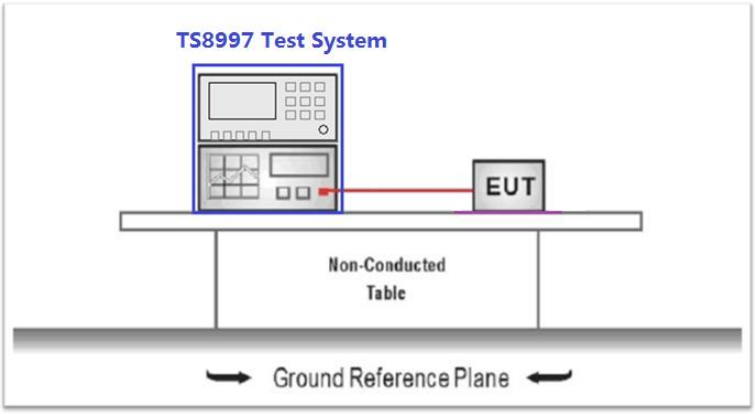
5.3. Occupied Channel Bandwidth

LIMIT

ETSI EN 300 328 Sub-clause 4.3.2.7.3

- The Occupied Channel Bandwidth shall fall completely within the band given in the band 2,4 GHz to 2,4835 GHz.
- In addition, for non-adaptive equipment using wide band modulations other than FHSS and with e.i.r.p greater than10 dBm, the occupied channel bandwidth shall be less than 20 MHz.

TEST CONFIGURATION



TEST PROCEDURE

1. The test conditions.

☒Normal condition ☐Extreme conditions

2. Please refer to ETSI EN 300 328 Sub-clause 5.4.7.2.1 for the measurement method.
3. The spectrum setting as follow:
   802.11b/g/n(HT20):RBW=500KHz, VBW=2MHz,
   Sweep time: 1 seconds, Detector: RMS

TEST MODE:

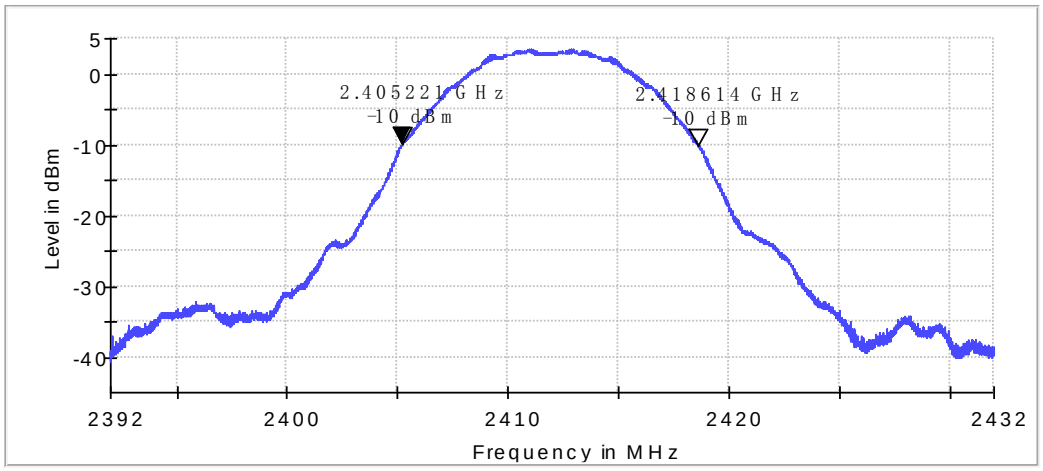
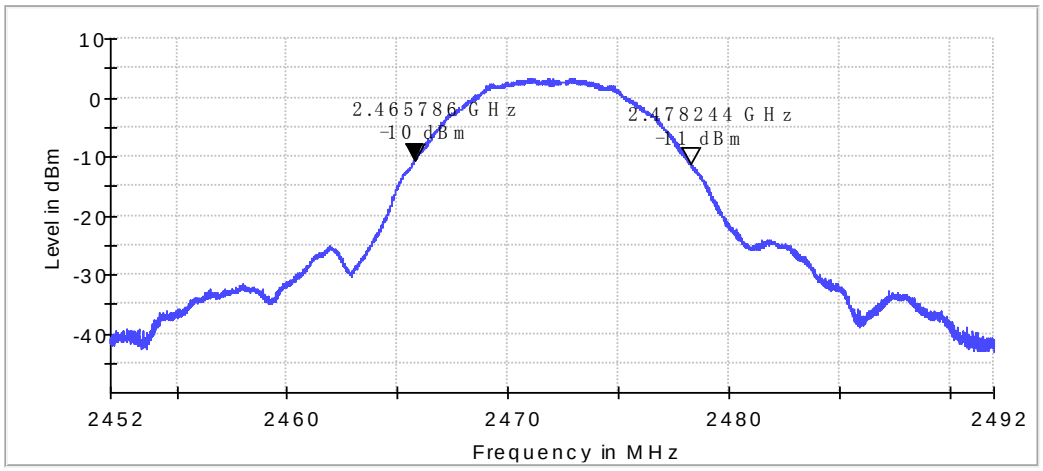
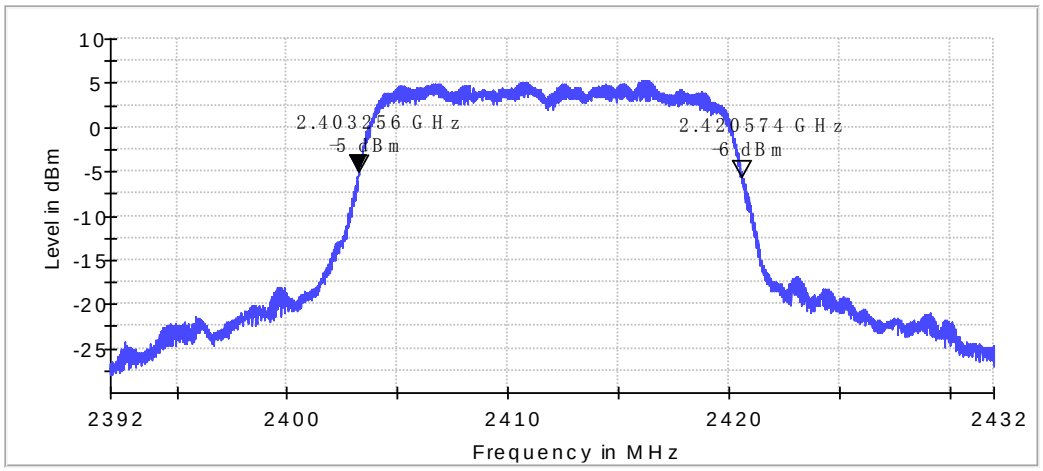
Continuously transmitting at the lowest, and the highest channel

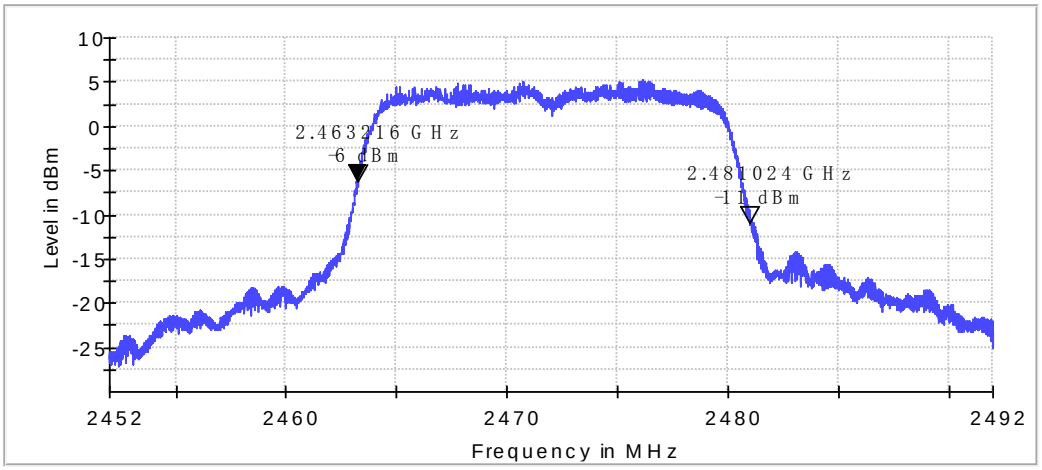
TEST RESULTS

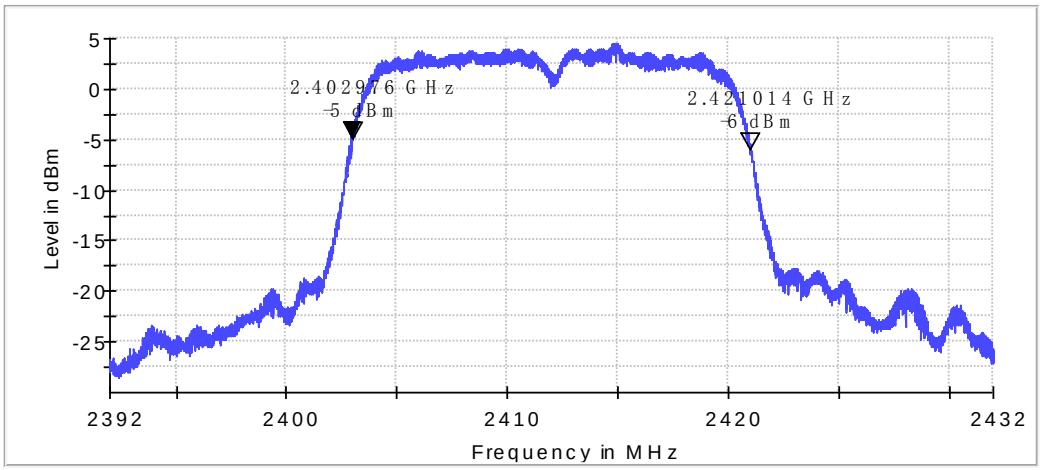
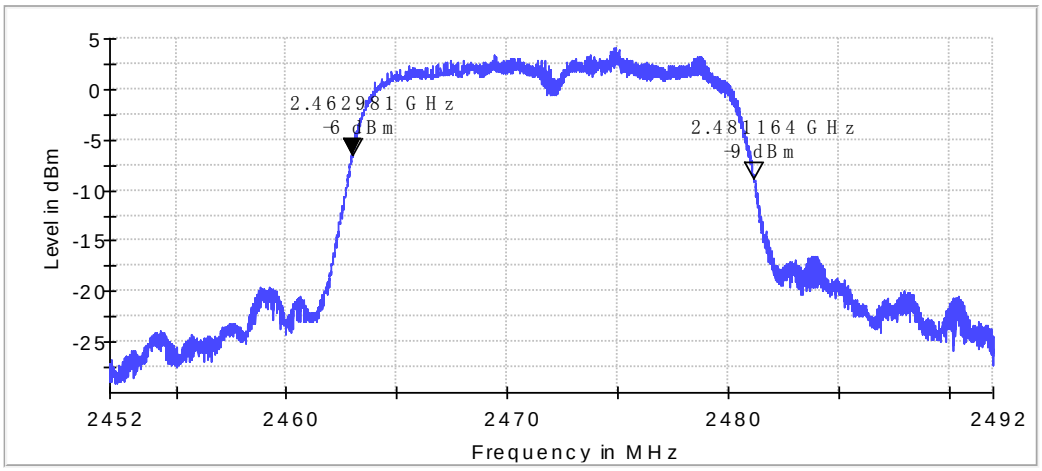
☒ **Passed** ☐ **Not Applicable**

Mode	Channel	Measured Frequency (MHz)		Limit (MHz)	Result
		F_{lower}	F_{higher}		
802.11b	CH01	2405.22	2418.61	2400.00~2483.50	Pass
	CH13	2465.79	2478.24		
802.11g	CH01	2403.26	2420.57	2400.00~2483.50	Pass
	CH13	2463.22	2481.03		
802.11n(HT20)	CH01	2402.98	2421.01	2400.00~2483.50	Pass
	CH13	2462.98	2481.16		

Test plot as follows:

802.11b CH01:	
802.11b CH13:	
802.11g CH01:	

802.11g CH13:	

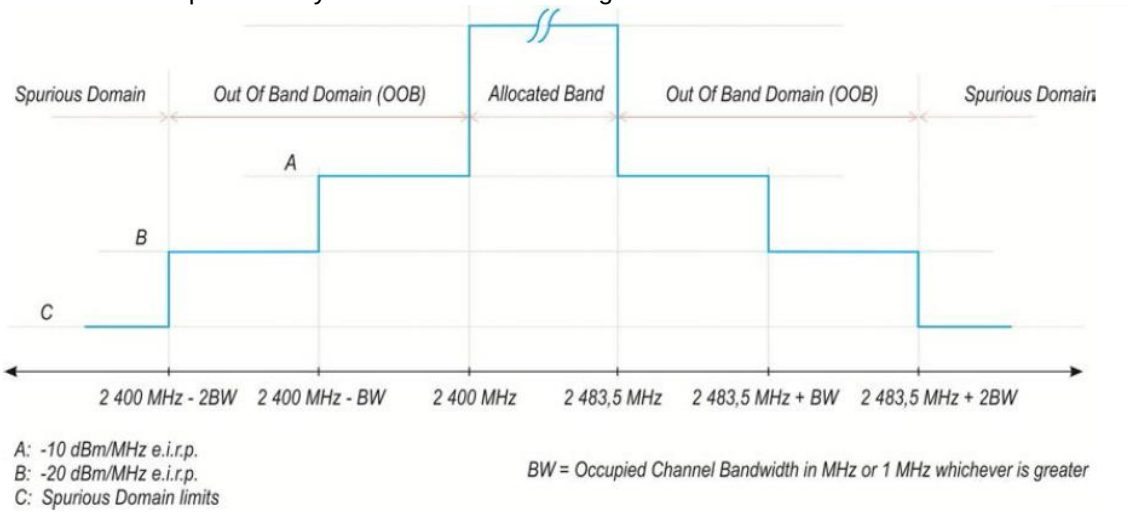
802.11n(HT20) CH01:	
802.11n(HT20 CH13:	

5.4. Transmitter Unwanted Emissions in the Out-of-band Domain

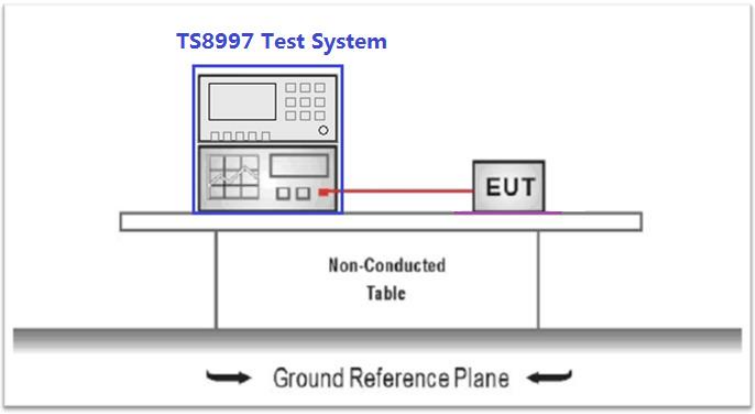
LIMIT

ETSI EN 300 328 Sub-clause 4.3.2.8.3

The transmitter unwanted emissions in the out-of-band domain but outside the allocated band, shall not exceed thevalues provided by the maskinthe below figure.



TEST CONFIGURATION



TEST PROCEDURE

1. The test conditions.

☒Normal condition ☐Extreme conditions

2. Please refer to ETSI EN 300 328 Sub-clause 5.4.8.2.1 for the measurement method.

TEST MODE:

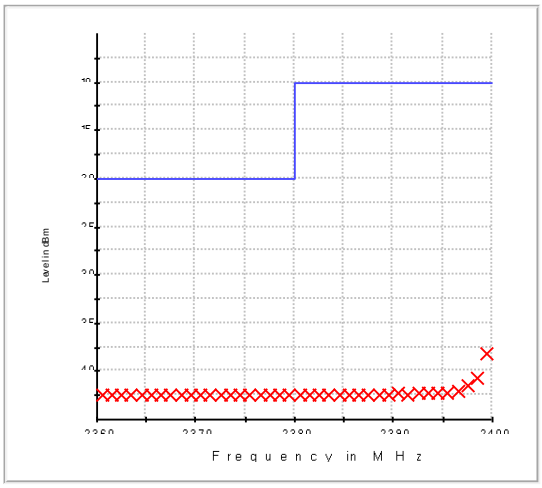
Continuously transmitting at the lowest, and the highest channel

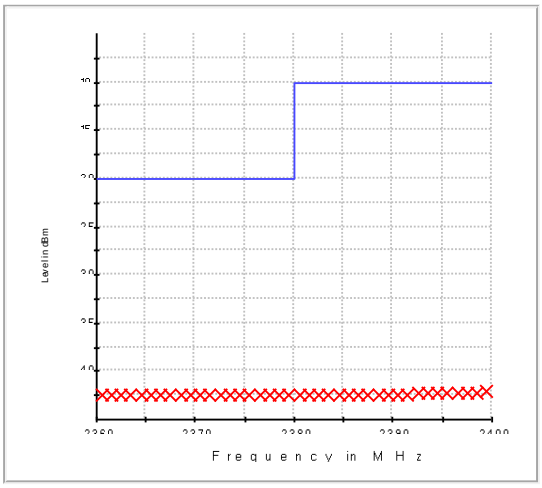
TEST RESULTS

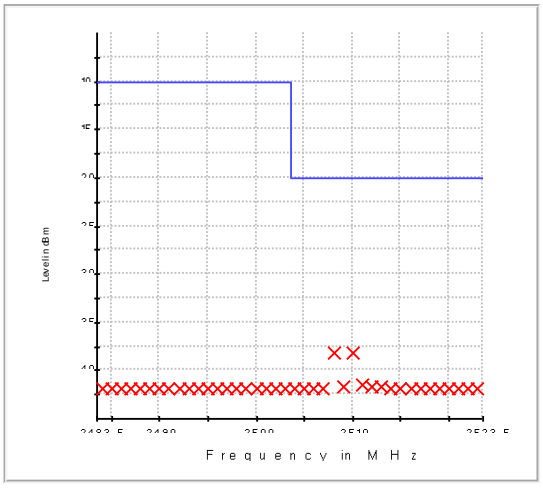
☒ **Passed** ☐ **Not Applicable**

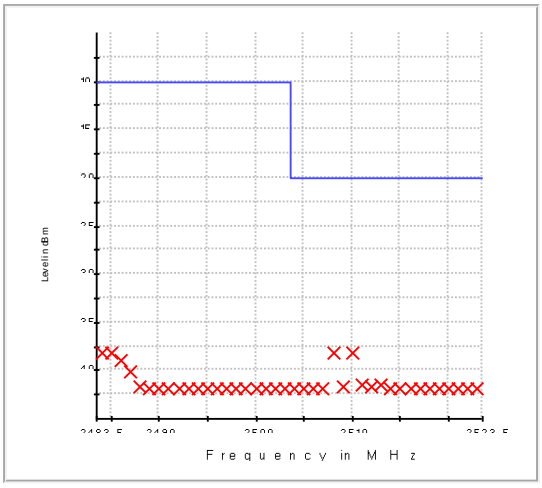
802.11b				
Frequency range (MHz)		Level (dBm)	Limit (dBm)	Result
Start	Stop			
2400-2OBW	2400-OBW	-42.68	<-20.00	Pass
2400-OBW	2400	-38.04	<-10.00	Pass
2483.5	2483.5+OBW	-38.17	<-10.00	Pass
2483.5+OBW	2483.5+2OBW	-38.19	<-20.00	Pass

Test plot as follows:







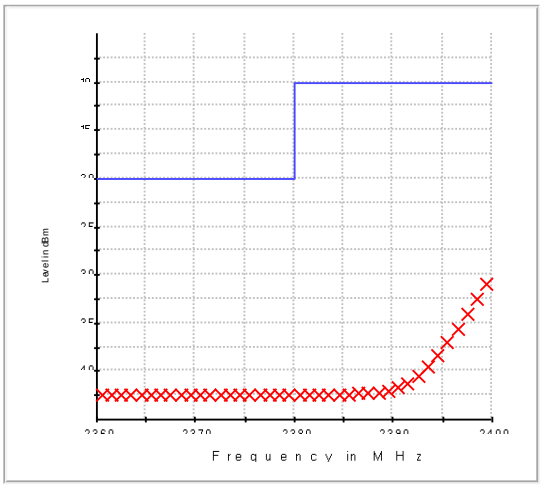


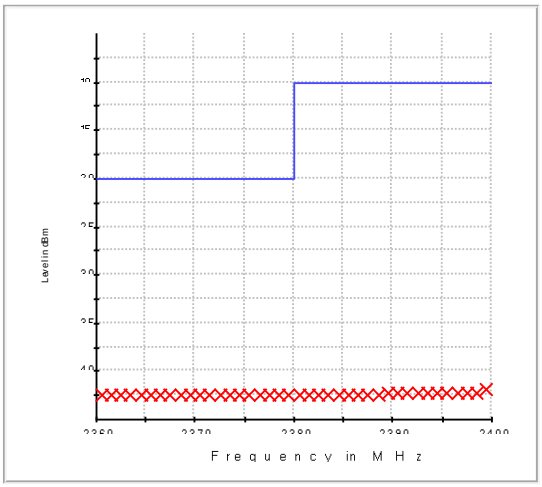
CH01	CH13

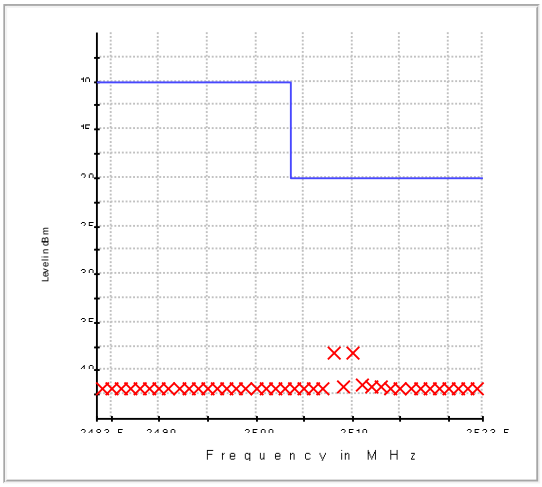
Note:Radiant level is far less than the limit, Only show the worst test result.

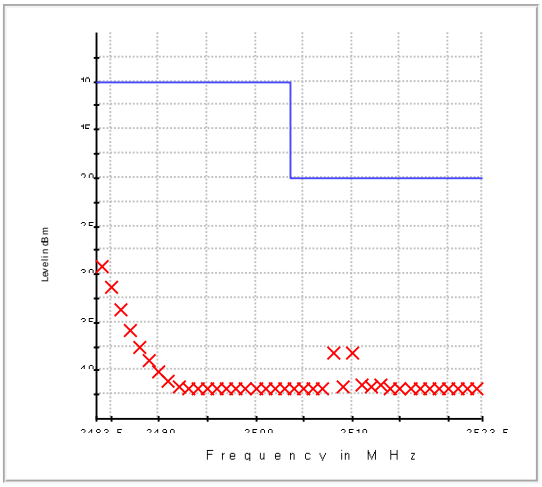
802.11g				
Frequency range (MHz)		Level (dBm)	Limit (dBm)	Result
Start	Stop			
2400-2OBW	2400-OBW	-42.59	<-20.00	Pass
2400-OBW	2400	-31.48	<-10.00	Pass
2483.5	2483.5+OBW	-29.07	<-10.00	Pass
2483.5+OBW	2483.5+2OBW	-37.93	<-20.00	Pass

Test plot as follows:







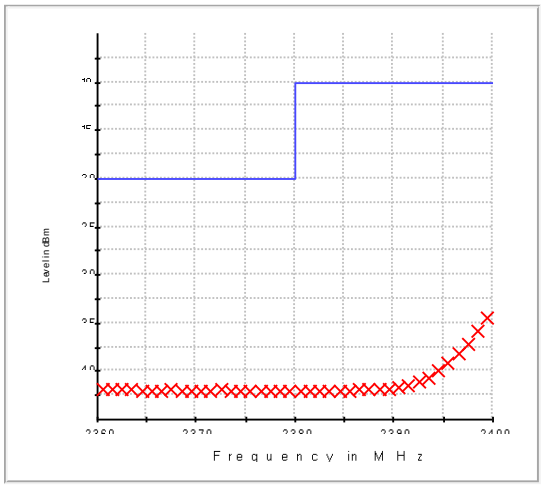


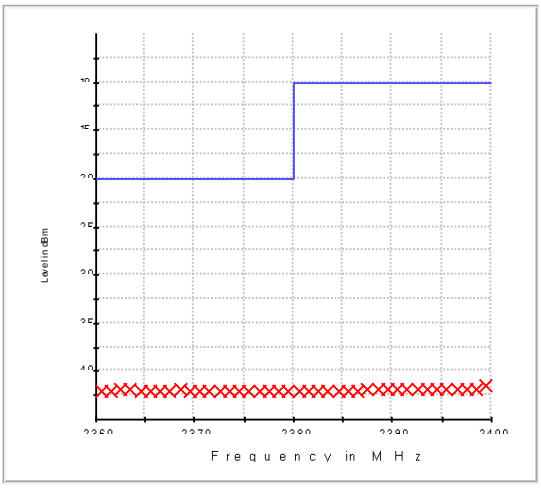
CH01	CH13

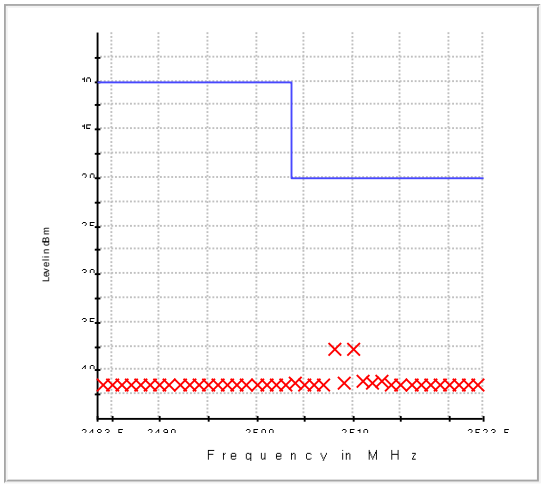
Note: Radiant level is far less than the limit, Only show the worst test result.

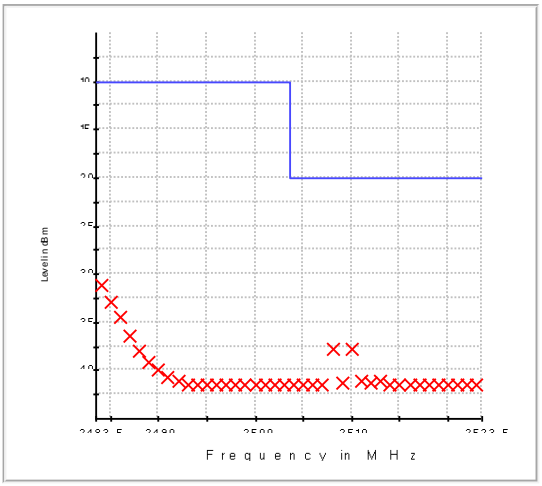
802.11n(HT20)				
Frequency range (MHz)		Level (dBm)	Limit (dBm)	Result
Start	Stop			
2400-2OBW	2400-OBW	-41.94	<-20.00	Pass
2400-OBW	2400	-34.83	<-10.00	Pass
2483.5	2483.5+OBW	-31.48	<-10.00	Pass
2483.5+OBW	2483.5+2OBW	-37.61	<-20.00	Pass

Test plot as follows:









CH01	CH13

Note: Radiant level is far less than the limit, Only show the worst test result.

5.5. Transmitter Unwanted Emissions in the Spurious Domain

5.5.1. Conducted Measurements

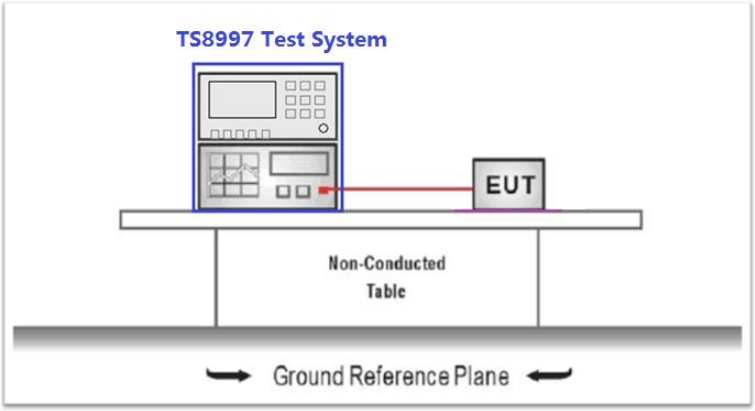
LIMIT

ETSI EN 300 328 Sub-clause 4.3.2.9.3

The transmitter unwanted emissions in the spurious domain shall not exceed the values given in the below table

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 12,75 GHz	-30 dBm	1 MHz

TEST CONFIGURATION



TEST PROCEDURE

1. The test conditions.

☒Normal condition ☐Extreme conditions

2. Please refer to ETSI EN 300 328 Sub-clause 5.4.9.2.1 for the measurement method.

TEST MODE:

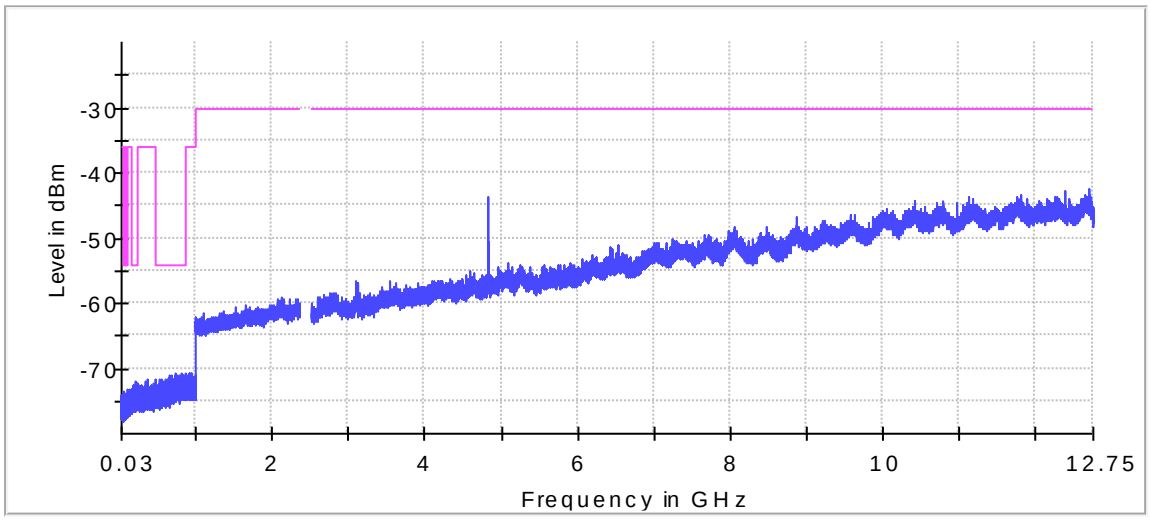
Continuously transmitting at the lowest, and the highest channel

TEST RESULTS

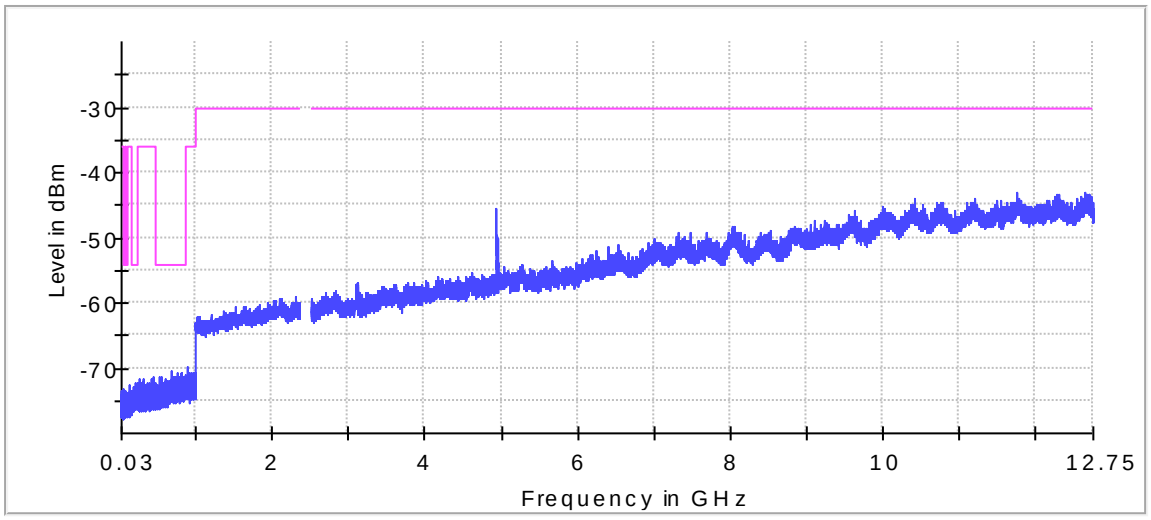
☒ **Passed** ☐ **Not Applicable**

Note: Pre-scan 802.11b, 802.11g, 802.11n(HT20) mode, and found the 802.11b mode which it is worse case, so only show the test data for worse case.

Mode:	802.11b	Test channel:	CH01



Mode:	802.11b	Test channel:	CH13



5.5.2. Radiated Measurements

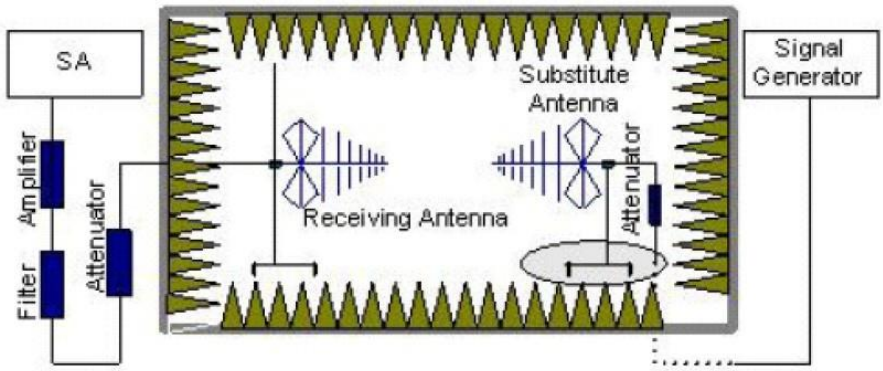
LIMIT

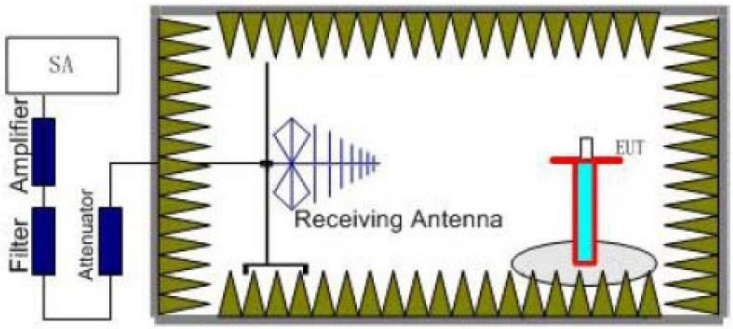
ETSI EN 300 328 Sub-clause 4.3.2.9.3

The transmitter unwanted emissions in the spurious domain shall not exceed the values given in the below table

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 12,75 GHz	-30 dBm	1 MHz

TEST CONFIGURATION





TEST PROCEDURE

1. The test conditions.

☒Normal condition ☐Extreme conditions

2. Please refer to ETSI EN 300 328 Sub-clause 5.4.9.2.2 for the measurement method.

TEST MODE:

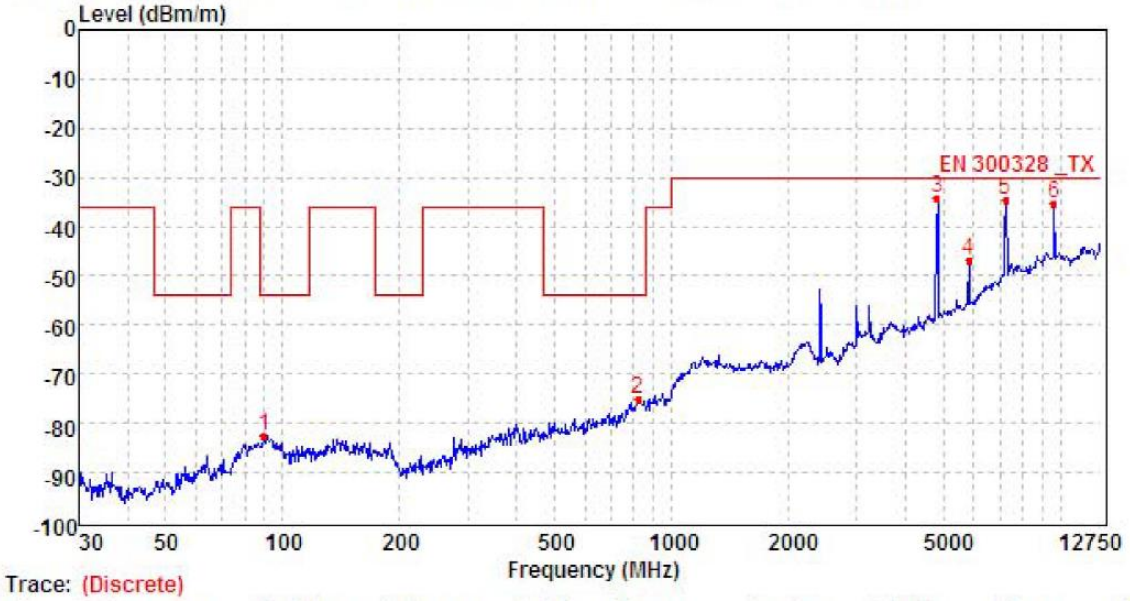
Continue transmitting at the lowest and the highest channel

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

Note: Pre-scan 802.11b, 802.11g, 802.11n(HT20)mode, and found the 802.11b mode which it is worse case, so only show the test data for worse case.

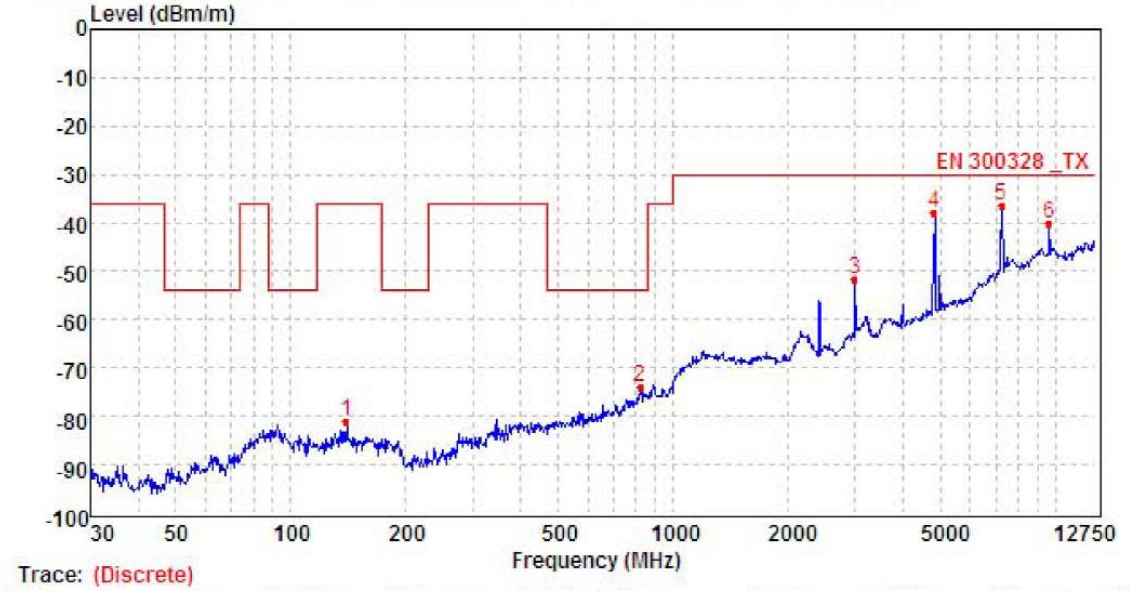
802.11b			
Test Channel:	CH01	Polarity:	Horizontal



Trace: (Discrete)

Mark	Frequency MHZ	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	89.55	-80.22	27.35	1.09	30.67	-82.45	-54.00	-28.45	Peak
2	820.76	-80.64	31.57	3.54	29.45	-74.98	-54.00	-20.98	Peak
3	4821.76	-51.94	43.73	9.55	35.69	-34.35	-30.00	-4.35	Peak
4	5821.21	-67.25	44.20	10.60	34.24	-46.69	-30.00	-16.69	Peak
5	7245.81	-61.63	48.63	11.91	33.45	-34.54	-30.00	-4.54	Peak
6	9660.72	-65.02	49.84	13.71	33.96	-35.43	-30.00	-5.43	Peak

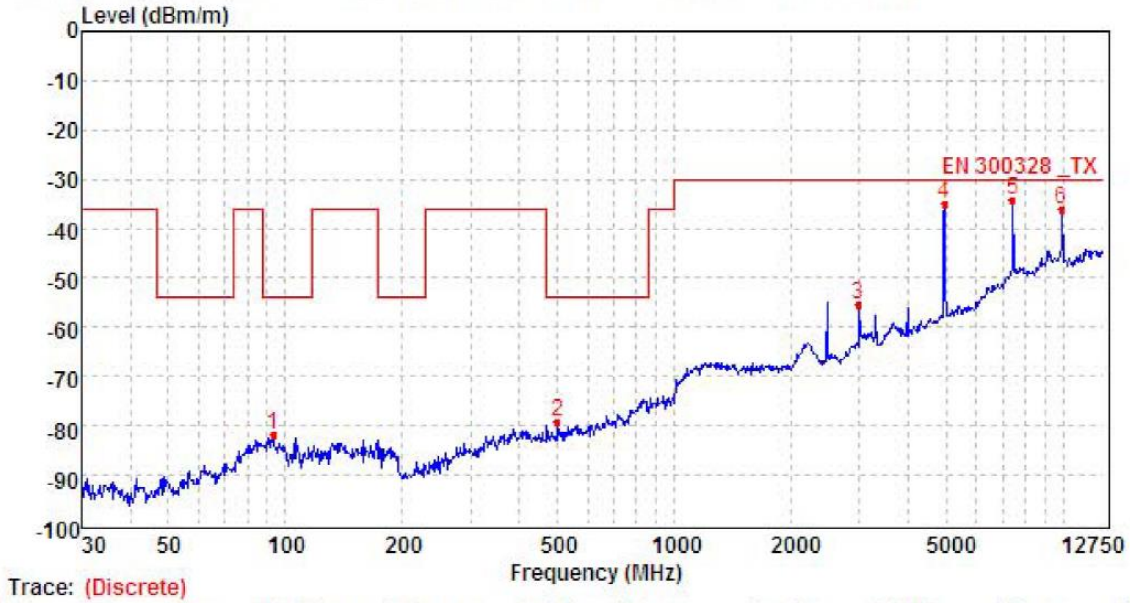
Test Channel:	CH01	Polarity:	Vertical



Trace: (Discrete)

Mark	Frequency MHZ	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	139.97	-78.31	26.29	1.35	30.45	-81.12	-36.00	-45.12	Peak
2	823.65	-79.84	31.61	3.55	29.43	-74.11	-54.00	-20.11	Peak
3	2995.54	-62.41	41.01	7.48	37.58	-51.50	-30.00	-21.50	Peak
4	4821.76	-55.40	43.73	9.55	35.69	-37.81	-30.00	-7.81	Peak
5	7245.81	-63.37	48.63	11.91	33.45	-36.28	-30.00	-6.28	Peak
6	9660.72	-69.69	49.84	13.71	33.96	-40.10	-30.00	-10.10	Peak

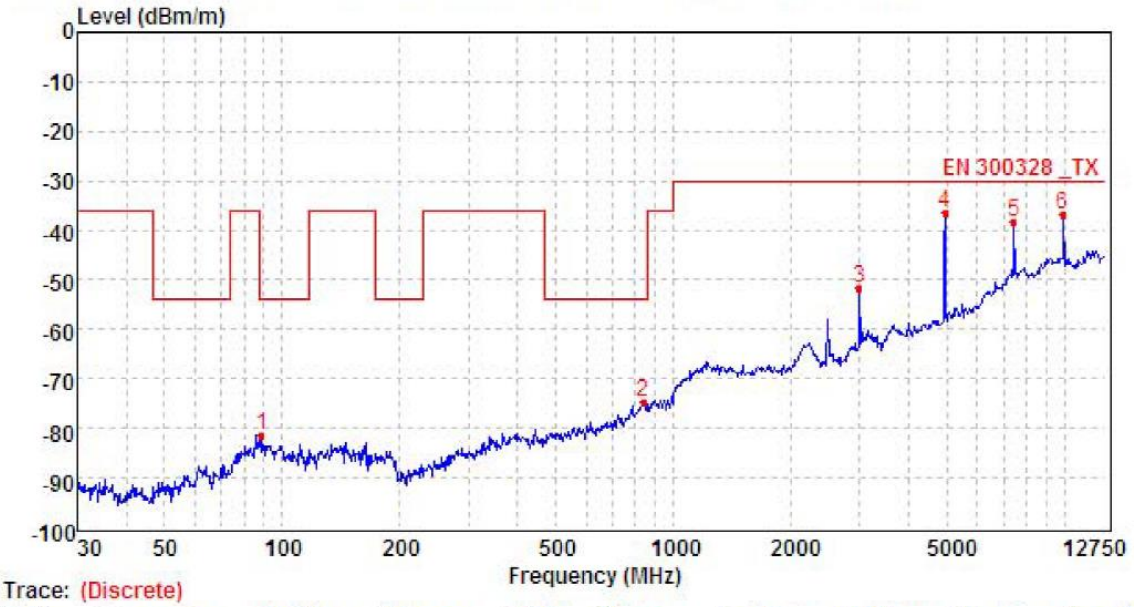
Test Channel:	CH13	Polarity:	Horizontal



Trace: (Discrete)

Mark	Frequency MHZ	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	93.09	-78.90	26.76	1.11	30.66	-81.69	-54.00	-27.69	Peak
2	503.43	-78.87	28.04	2.63	30.91	-79.11	-54.00	-25.11	Peak
3	2987.92	-66.46	41.00	7.47	37.58	-55.57	-30.00	-25.57	Peak
4	4946.07	-53.32	44.28	9.63	35.47	-34.88	-30.00	-4.88	Peak
5	7432.62	-61.89	48.53	12.18	33.13	-34.31	-30.00	-4.31	Peak
6	9909.80	-66.10	50.43	13.59	34.15	-36.23	-30.00	-6.23	Peak

Test Channel:	CH13	Polarity:	Vertical



Trace: (Discrete)

Mark	Frequency MHZ	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	88.61	-78.95	27.16	1.08	30.68	-81.39	-54.00	-27.39	Peak
2	841.21	-80.64	31.82	3.58	29.32	-74.56	-54.00	-20.56	Peak
3	2995.54	-62.72	41.01	7.48	37.58	-51.81	-30.00	-21.81	Peak
4	4946.07	-54.83	44.28	9.63	35.47	-36.39	-30.00	-6.39	Peak
5	7432.62	-65.87	48.53	12.18	33.13	-38.29	-30.00	-8.29	Peak
6	9909.80	-66.62	50.43	13.59	34.15	-36.75	-30.00	-6.75	Peak

5.6. Receiver Spurious Emissions

5.6.1. Conducted Measurements

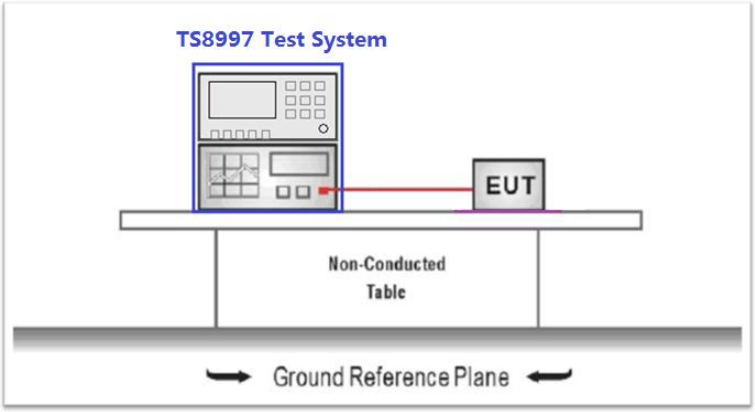
LIMIT

ETSI EN 300 328 Sub-clause 4.3.2.10.3

The spurious emissions of the receiver shall not exceed the values given in the below table

Frequency range	Maximum power	Measurement bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz
1 GHz to 12,75 GHz	-47 dBm	1 MHz

TEST CONFIGURATION



TEST PROCEDURE

1. The test conditions.

☒Normal condition ☐Extreme conditions

2. Please refer to ETSI EN 300 328 Sub-clause 5.4.10.2.1 for the measurement method.

TEST MODE:

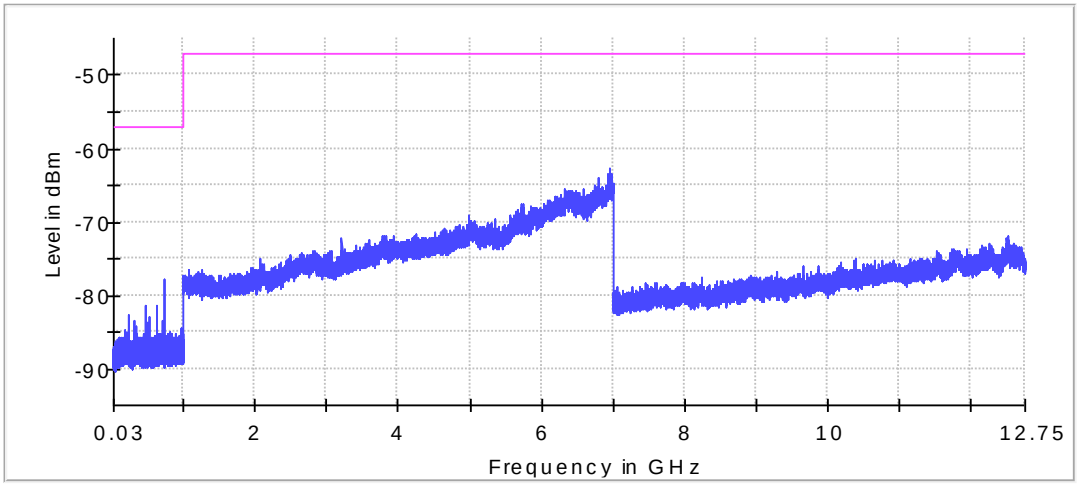
Continue receiving at the lowest and the highest channel

TEST RESULTS

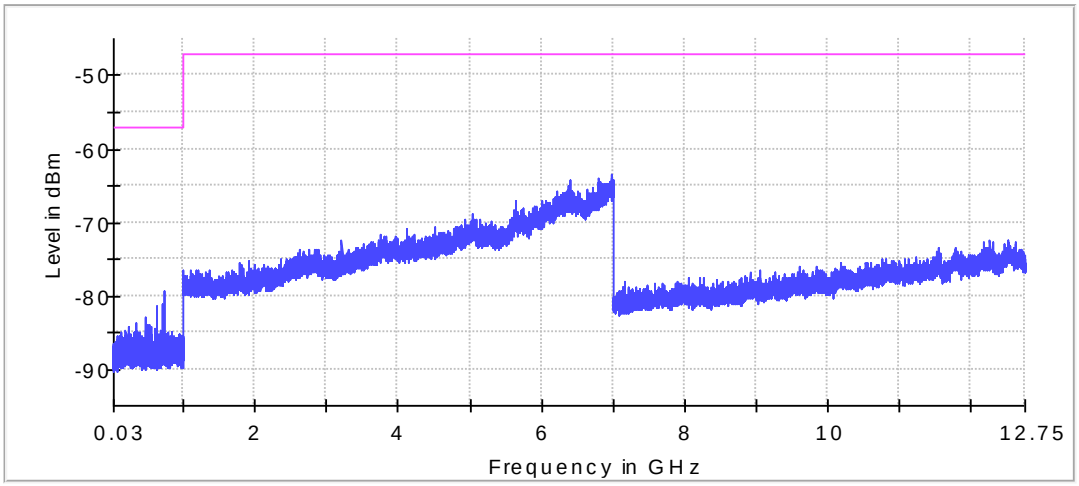
☒ **Passed** ☐ **Not Applicable**

Note: Pre-scan 802.11b, 802.11g, 802.11n(HT20) mode, and found the 802.11b mode which it is worse case, so only show the test data for worse case.

Mode:	802.11b	Test channel:	CH01



Mode:	802.11b	Test channel:	CH13



5.6.2. Radiated Measurements

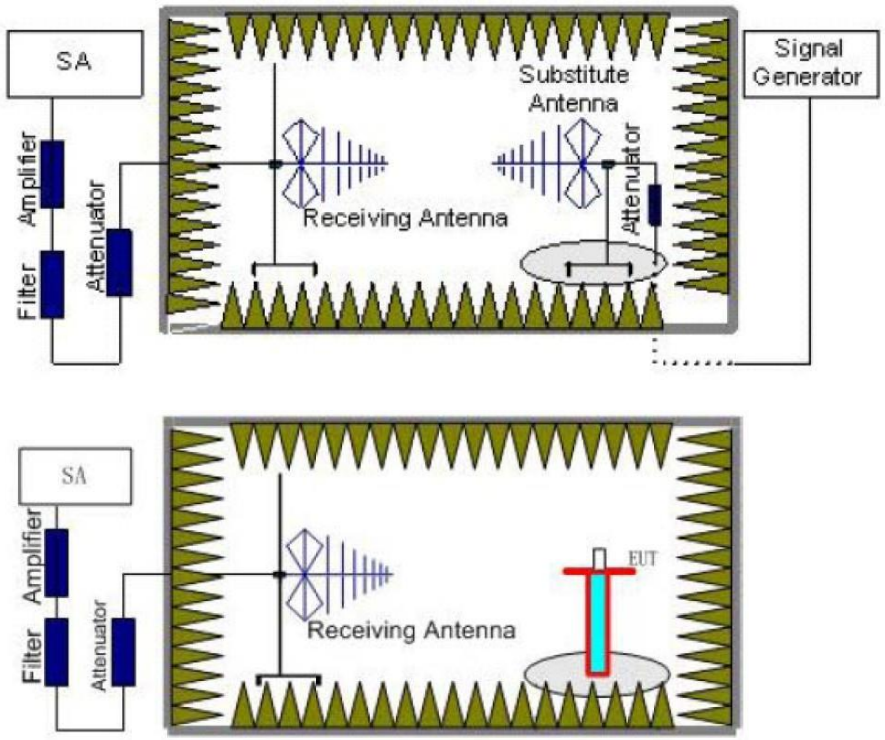
LIMIT

ETSI EN 300 328 Sub-clause 4.3.2.10.3

The spurious emissions of the receiver shall not exceed the values given in the below table

Frequency range	Maximum power	Measurement bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz
1 GHz to 12,75 GHz	-47 dBm	1 MHz

TEST CONFIGURATION



TEST PROCEDURE

1. The test conditions.

☒Normal condition ☐Extreme conditions

2. Please refer to ETSI EN 300 328 Sub-clause 5.4.10.2.2 for the measurement method.

TEST MODE:

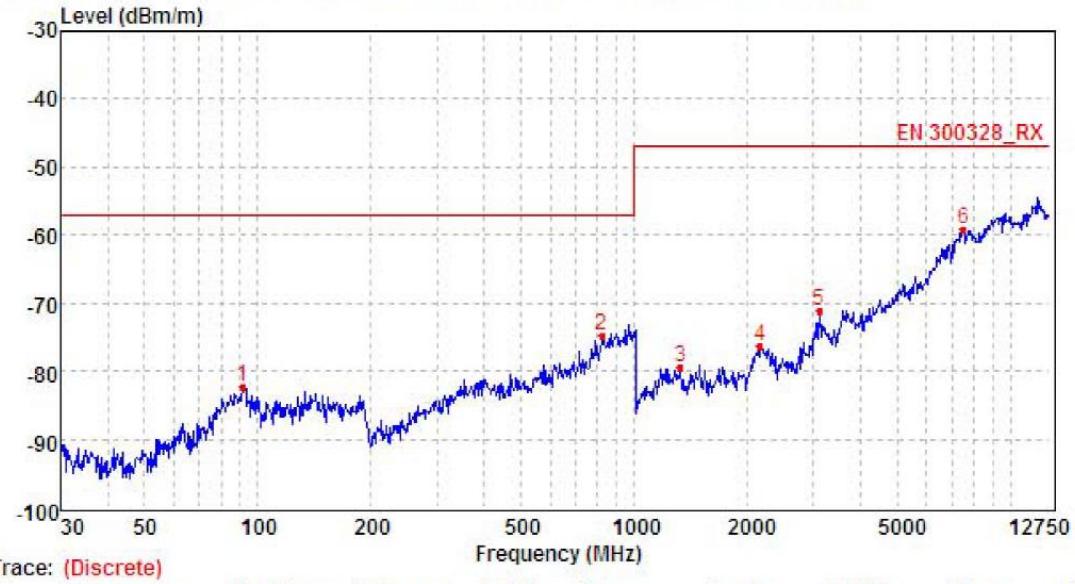
Continue receiving at the lowest and the highest channel

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

Note: Pre-scan 802.11b, 802.11g, 802.11n(HT20) mode, and found the 802.11b mode which it is worse case, so only show the test data for worse case.

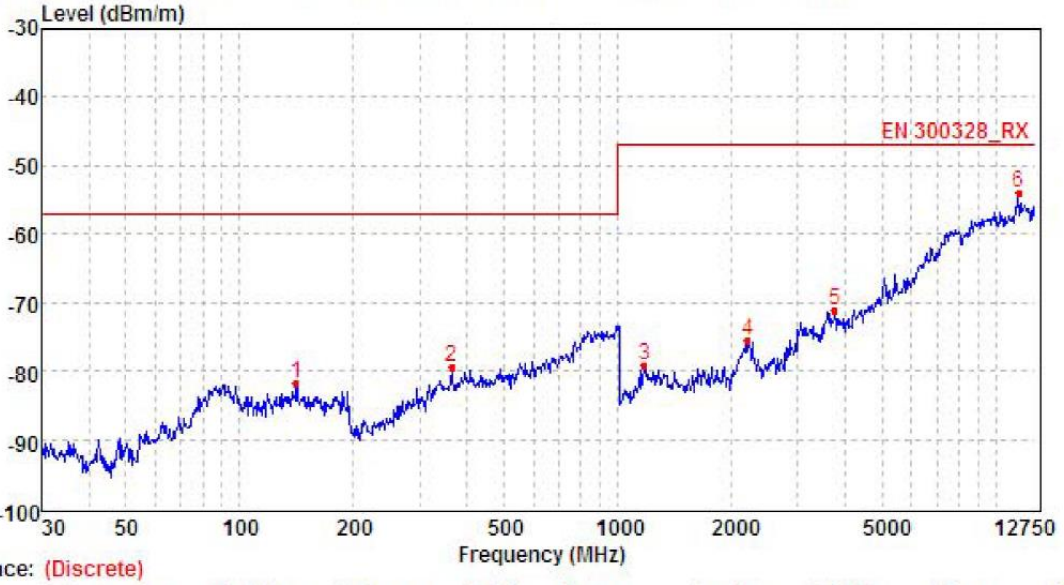
802.11b			
Test Channel:	CH01	Polarity:	Horizontal



Trace: (Discrete)

Mark	Frequency MHZ	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	91.46	-79.83	27.11	1.10	30.67	-82.29	-57.00	-25.29	Peak
2	823.65	-80.47	31.61	3.55	29.43	-74.74	-57.00	-17.74	Peak
3	1333.28	-84.64	37.47	4.89	37.15	-79.43	-47.00	-32.43	Peak
4	2168.08	-86.26	41.21	6.41	37.60	-76.24	-47.00	-29.24	Peak
5	3104.22	-82.51	41.26	7.61	37.48	-71.12	-47.00	-24.12	Peak
6	7508.69	-86.82	48.40	12.42	33.02	-59.02	-47.00	-12.02	Peak

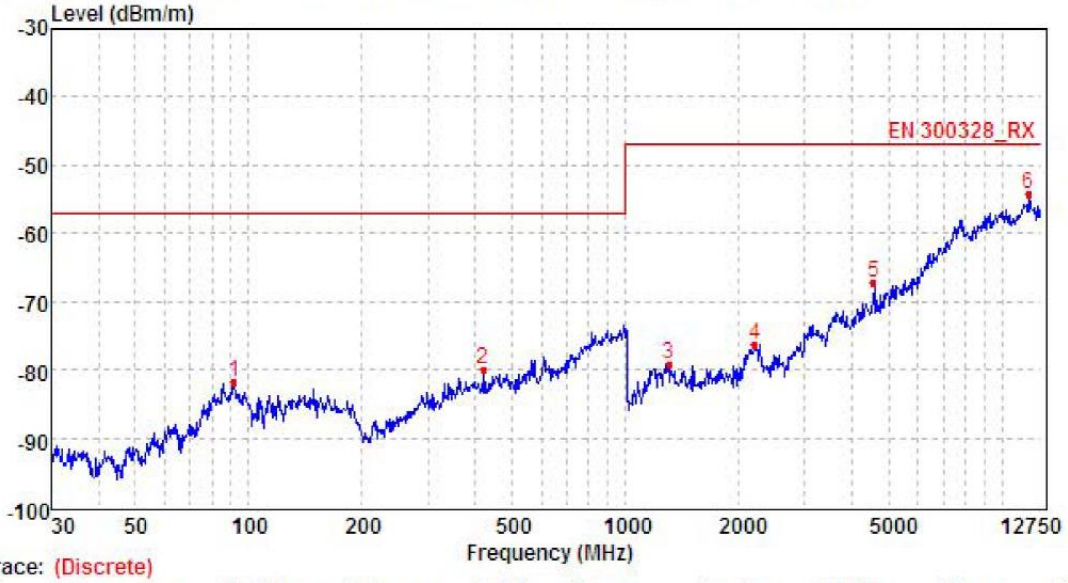
Test Channel:	CH01	Polarity:	Vertical



Trace: (Discrete)

Mark	Frequency MHZ	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	141.45	-78.92	26.07	1.36	30.42	-81.91	-57.00	-24.91	Peak
2	364.28	-77.81	26.36	2.20	30.12	-79.37	-57.00	-22.37	Peak
3	1179.94	-83.12	36.47	4.61	37.24	-79.28	-47.00	-32.28	Peak
4	2207.06	-86.05	41.64	6.45	37.60	-75.56	-47.00	-28.56	Peak
5	3757.21	-84.75	42.15	8.45	36.94	-71.09	-47.00	-24.09	Peak
6	11515.68	-86.02	53.20	13.54	34.59	-53.87	-47.00	-6.87	Peak

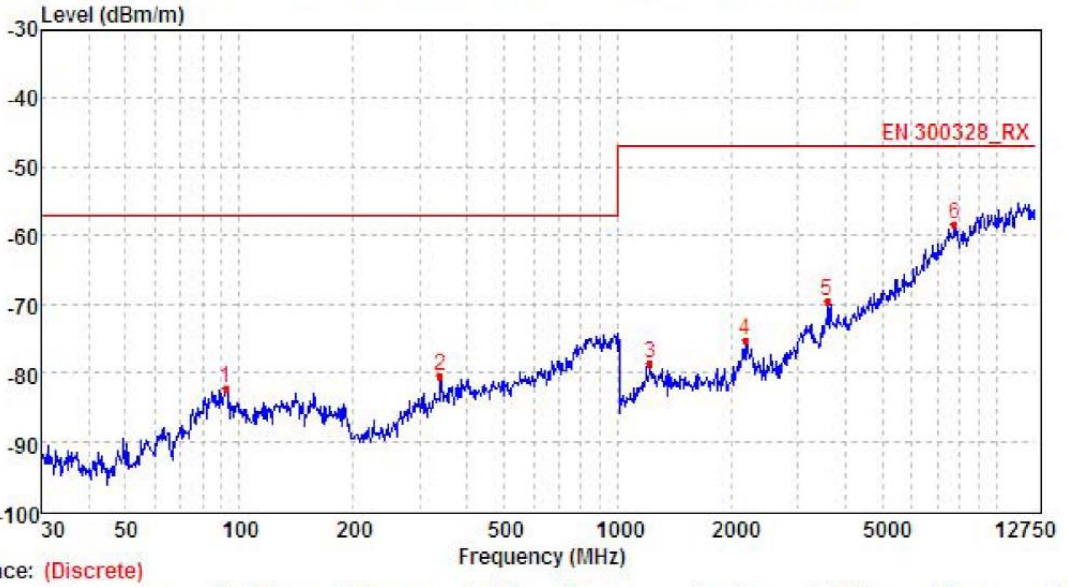
Test Channel:	CH13	Polarity:	Horizontal



Trace: (Discrete)

Mark	Frequency MHZ	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	91.78	-79.14	27.04	1.10	30.67	-81.67	-57.00	-24.67	Peak
2	420.77	-78.69	26.65	2.40	30.22	-79.86	-57.00	-22.86	Peak
3	1309.74	-84.16	37.36	4.85	37.16	-79.11	-47.00	-32.11	Peak
4	2218.32	-86.57	41.50	6.47	37.60	-76.20	-47.00	-29.20	Peak
5	4582.42	-83.91	43.46	9.43	36.13	-67.15	-47.00	-20.15	Peak
6	11812.58	-86.32	53.05	14.18	35.02	-54.11	-47.00	-7.11	Peak

Test Channel:	CH13	Polarity:	Vertical



Trace: (Discrete)

Mark	Frequency MHZ	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	92.43	-79.64	26.90	1.11	30.67	-82.30	-57.00	-25.30	Peak
2	339.54	-78.05	25.74	2.11	30.17	-80.37	-57.00	-23.37	Peak
3	1219.64	-82.95	36.94	4.69	37.21	-78.53	-47.00	-31.53	Peak
4	2173.61	-85.48	41.30	6.42	37.60	-75.36	-47.00	-28.36	Peak
5	3588.94	-83.27	42.46	8.25	37.07	-69.63	-47.00	-22.63	Peak
6	7761.32	-86.97	48.50	13.16	33.05	-58.36	-47.00	-11.36	Peak

5.7. Adaptivity

LIMIT

ETSI EN 300 328 Sub-clause 4.3.2.6

Non-LBT based Detect and Avoid

1) During normal operation, the equipment shall evaluate the presence of a signal on its current operating channel. Ifit is determined that a signal is present with a level above the detection threshold defined in step 5 the channelshall be marked as 'unavailable'.
2) The channel shall remain unavailable for a minimum time equal to 1 s after which the channel may be consideredagain as an 'available' channel.
3) The total time during which an equipment has transmissions on a given channel without re-evaluating theavailability of that channel, is defined as the Channel Occupancy Time.
4) The Channel Occupancy Time shall be less than 40 ms. Each such transmission sequence shall be followed by anIdle Period (no transmissions) of minimum 5 % of the Channel Occupancy Time with a minimum of 100 µs. Afterthis, the procedure as in step 1 needs to be repeated.
5) The detection threshold shall be proportional to the transmit power of the transmitter: for a 20 dBm e.i.r.p.transmitter the detection threshold level (TL) shall be equal to or less than -70 dBm/MHz at the input to thereceiver assuming a 0 dBi (receive) antenna assembly. This threshold level (TL) may be corrected for the (receive)antenna assembly gain (G); however, beamforming gain (Y) shall not be taken into account. For power levels lessthan 20 dBm e.i.r.p., the detection threshold level may be relaxed to: TL = -70 dBm/MHz + 10 × $\log_{10}$ (100 mW / Pout) (Pout in mWe.i.r.p.)
6) The equipment shall comply with the requirements defined in step 1 to step 4 of the present clause in the presenceof an unwanted CW signal as defined in below table .

Wanted signal mean power from companion device (dBm)	Unwanted signal frequency (MHz)	Unwanted CW signal power (dBm)
-30	2 395 or 2 488,5 (see note 1)	-35 (see note 2)
NOTE 1: The highest frequency shall be used for testing operating channels within the range 2 400 MHz to 2 442 MHz, while the lowest frequency shall be used for testing operating channels within the range 2 442 MHz to 2 483,5 MHz. See clause 5.4.6.1.		
NOTE 2: The level specified is the level in front of the UUT antenna. In case of conducted measurements, this level has to be corrected by the actual antenna assembly gain.		

LBT based Detect and Avoid- Frame Based Equipment

1) Before transmission, the equipment shall perform a Clear Channel Assessment (CCA) check using energy detect. The equipment shall observe the operating channel for the duration of the CCA observation time which shall be not less than 18 µs. The channel shall be considered occupied if the energy level in the channel exceeds the threshold given in step 5 below. If the equipment finds the channel to be clear, it may transmit immediately.
2) If the equipment finds the channel occupied, it shall not transmit on this channel during the next Fixed Frame Period.
The equipment is allowed to switch to a non-adaptive mode and to continue transmissions on this channel providing it complies with the requirements applicable to non-adaptive equipment. See clause 4.3.2.6.1. Alternatively, the equipment is also allowed to continue Short Control Signalling Transmissions on this channel providing it complies with the requirements given in clause 4.3.2.6.4.
3) The total time during which an equipment has transmissions on a given channel without re-evaluating the availability of that channel, is defined as the Channel Occupancy Time.
The Channel Occupancy Time shall be in the range 1 ms to 10 ms followed by an Idle Period of at least 5 % of the Channel Occupancy Time used in the equipment for the current Fixed Frame Period.

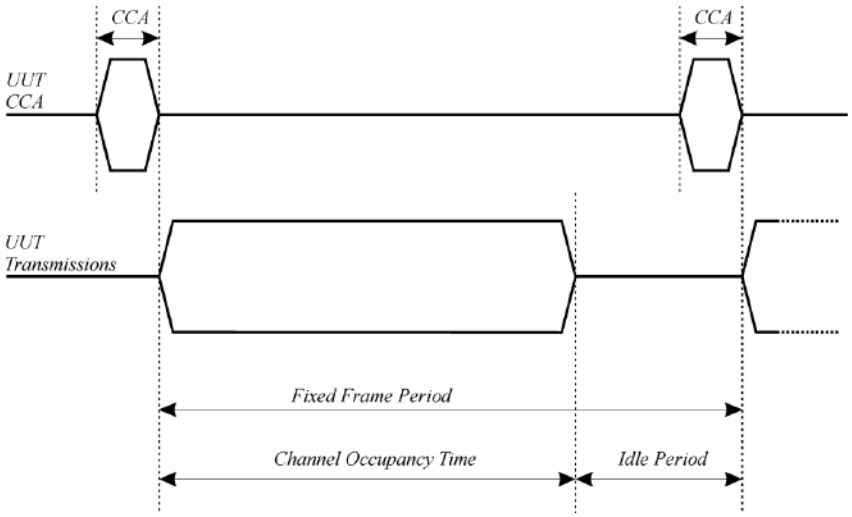
4) An equipment, upon correct reception of a packet which was intended for this equipment can skip CCA and immediately (see also next paragraph) proceed with the transmission of management and control frames (e.g. ACK and Block ACK frames are allowed but data frames are not allowed). A consecutive sequence of such transmissions by the equipment without a new CCA shall not exceed the maximum Channel Occupancy Time.
5) The energy detection threshold for the CCA shall be proportional to the transmit power of the transmitter: for a 20 dBm e.i.r.p. transmitter the CCA threshold level (TL) shall be equal to or less than -70 dBm/MHz at the input to the receiver assuming a 0 dBi (receive) antenna assembly. This

threshold level (TL) may be corrected for the (receive) antenna assembly gain (G); however, beamforming gain (Y) shall not be taken into account. For power levels less than 20 dBm e.i.r.p. the CCA threshold level may be relaxed to:TL = -70 dBm/MHz + 10 × log10 (100 mW / Pout) (Pout in mWe.i.r.p.)

6) The equipment shall comply with the requirements defined in step 1 to step 4 in the present clause in the presence of an unwanted CW signal as defined in below table.

Wanted signal mean power from companion device	Unwanted signal frequency (MHz)	Unwanted signal power (dBm)
sufficient to maintain the link (see note 2)	2 395 or 2 488,5 (see note 1)	-35 (see note 3)
NOTE 1: The highest frequency shall be used for testing operating channels within the range 2 400 MHz to 2 442 MHz, while the lowest frequency shall be used for testing operating channels within the range 2 442 MHz to 2 483,5 MHz. See clause 5.4.6.1. NOTE 2: A typical value which can be used in most cases is -50 dBm/MHz. NOTE 3: The level specified is the level in front of the UUT antenna. In case of conducted measurements, this level has to be corrected by the actual antenna assembly gain.		

An example of the timing for Frame Based Equipment is provided in below figure .



LBT based Detect and Avoid-Load Based Equipment

1) Before a transmission or a burst of transmissions, the equipment shall perform a Clear Channel Assessment (CCA) check using energy detect. The equipment shall observe the operating channel for the duration of the CCA observation time which shall be not less than 18 µs. The channel shall be considered occupied if the energy level in the channel exceeds the threshold given in step 5 below. If the equipment finds the channel to be clear, it may transmit immediately.
2) If the equipment finds the channel occupied, it shall not transmit on this channel (see also the next paragraph). The equipment shall perform an Extended CCA check in which the channel is observed for a random duration in the range between 18 µs and at least 160 µs. If the extended CCA check has determined the channel to be no longer occupied, the equipment may resume transmissions on this channel. If the Extended CCA time has determined the channel still to be occupied, it shall perform new Extended CCA checks until the channel is no longer occupied.

   NOTE: The Idle Period in between transmissions is considered to be the CCA or the Extended CCA check as there are no transmissions during this period.

   The equipment is allowed to switch to a non-adaptive mode and to continue transmissions on this channel providing it complies with the requirements applicable to non-adaptive equipment. Alternatively, the equipment is also allowed to continue Short Control Signalling Transmissions on this channel providing it complies with the requirements given in clause 4.3.2.6.4.
3) The total time that an equipment makes use of a RF channel is defined as the Channel Occupancy Time. This Channel Occupancy Time shall be less than 13 ms, after which the device shall perform a new CCA as described in step 1 above.

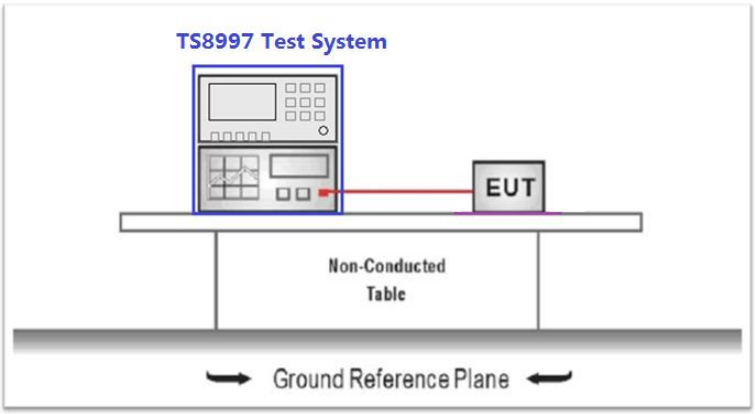
4) The equipment, upon correct reception of a packet which was intended for this equipment can skip CCA and immediately (see also next paragraph) proceed with the transmission of management and control frames (e.g. ACK and Block ACK frames are allowed but data frames are not allowed). A consecutive sequence of transmissions by the equipment without a new CCA shall not exceed the maximum channel occupancy time as defined in step 3 above.
For the purpose of multi-cast, the ACK transmissions (associated with the same data packet) of the individual devices are allowed to take place in a sequence.
5) The equipment, upon correct reception of a packet which was intended for this equipment can skip CCA andimmediately (see note 3) proceed with the transmission of management and control frames (e.g. ACK and BlockACK frames are allowed but data frames are not allowed). A consecutive sequence of transmissions by theequipment without a new CCA shall not exceed the maximum channel occupancy time as defined in step 3)above.
6) The energy detection threshold for the CCA shall be proportional to the transmit power of the transmitter: for a 20 dBm e.i.r.p. transmitter the CCA threshold level (TL) shall be equal to or less than -70 dBm/MHz at the input to the receiver assuming a 0 dBi (receive) antenna assembly. This threshold level (TL) may be corrected for the (receive) antenna assembly gain (G); however, beamforming gain (Y) shall not be taken into account. For power levels less than 20 dBm e.i.r.p., the CCA threshold level may be relaxed to:TL = -70 dBm/MHz + 10 × log10 (100 mW / Pout) (Pout in mWe.i.r.p.)
7) The equipment shall comply with the requirements defined in step 1 to step 4 of the present clause in the presence of an unwanted CW signal as defined in below table.

Wanted signal mean power from companion device	Unwanted signal frequency (MHz)	Unwanted signal power (dBm)
sufficient to maintain the link (see note 2)	2 395 or 2 488,5 (see note 1)	-35 (see note 3)
NOTE 1: The highest frequency shall be used for testing operating channels within the range 2 400 MHz to 2 442 MHz, while the lowest frequency shall be used for testing operating channels within the range 2 442 MHz to 2 483,5 MHz. See clause 5.4.6.1. NOTE 2: A typical value which can be used in most cases is -50 dBm/MHz. NOTE 3: The level specified is the level in front of the UUT antenna. In case of conducted measurements, this level has to be corrected by the actual antenna assembly gain.		

Short Control Signalling Transmissions

If implemented, Short Control Signalling Transmissions of adaptive equipment using wide band modulations other than FHSS shall have a maximum TxOn / (TxOn + TxOff) ratio of 10 % within any observation period of 50 ms.

TEST CONFIGURATION



TEST PROCEDURE

1.The test conditions.

☒ Normal condition ☐Extreme conditions

2.Please refer to ETSI EN 300 328 Sub-clause5.4.6.2.1 for the measurement method.

TEST MODE:

Normal operation

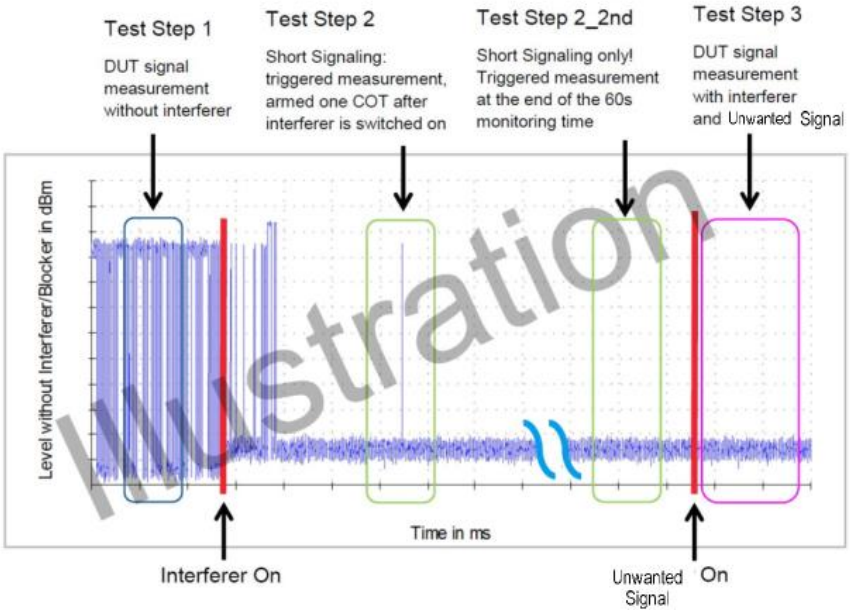
TEST RESULTS

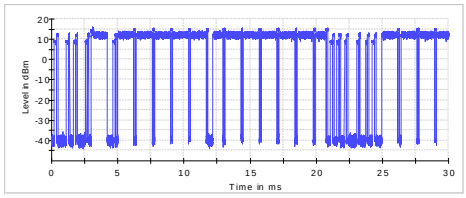
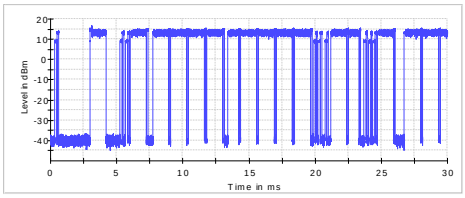
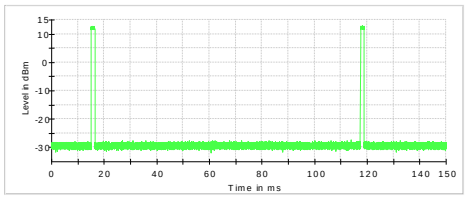
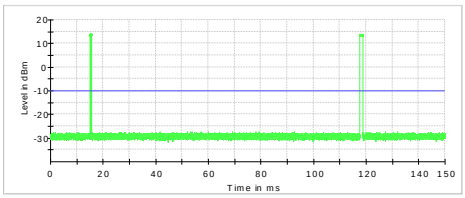
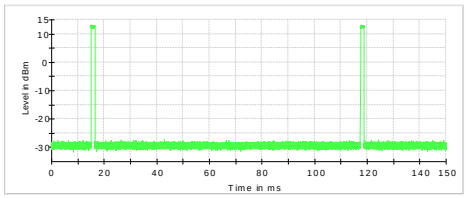
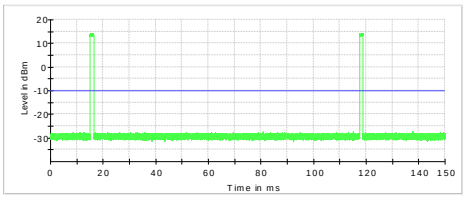
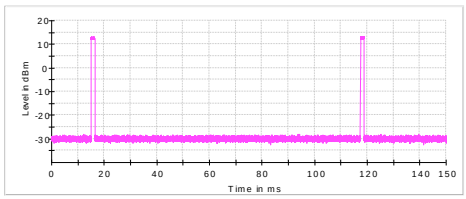
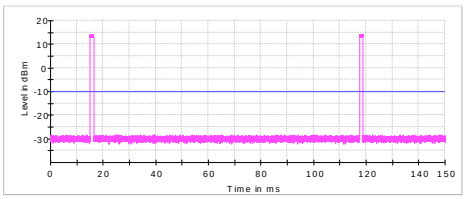
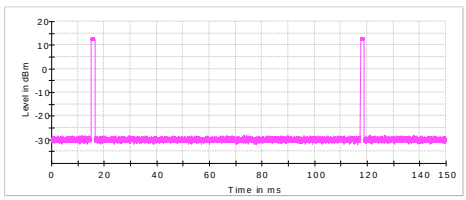
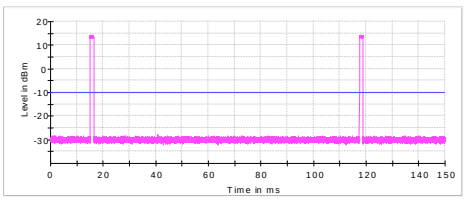
☒ **Passed** ☐ **Not Applicable**

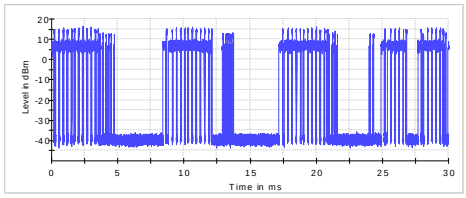
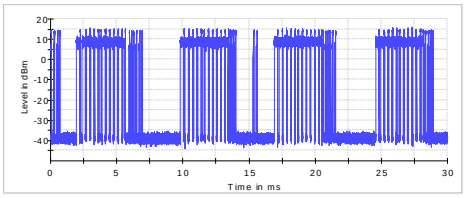
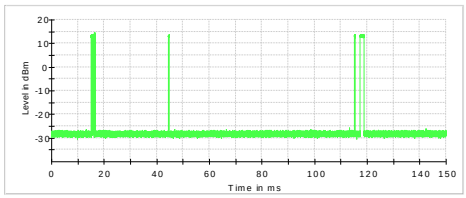
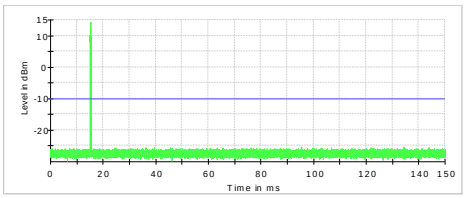
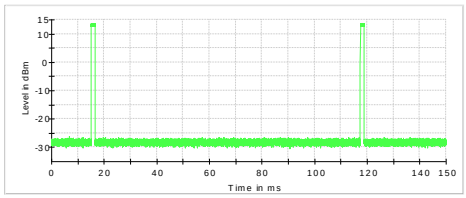
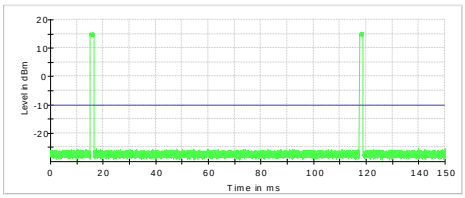
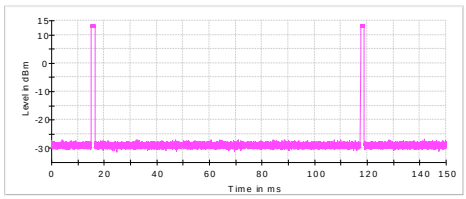
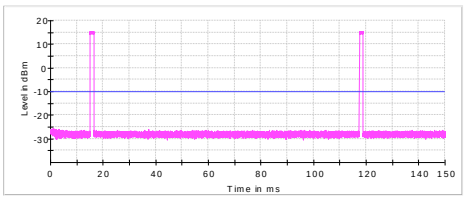
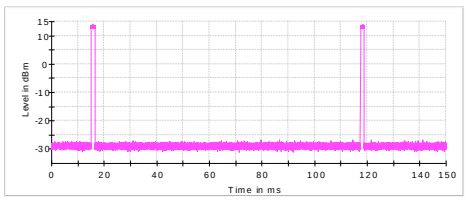
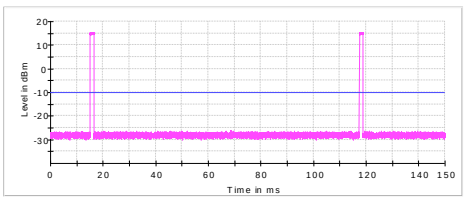
Type	Frequency (MHz)	Test Step	No. of Bursts	Max Burst Power (dBm)	COT (ms)	Limit (ms)	CCA Time (μs)	Limit (μs)	Result
802.11b	2412	Test Step 1	53	14.8	6.363	<13.00	36.00	>18.00	Pass
	2472	Test Step 1	49	14.8	6.363		27.00		
802.11g	2412	Test Step 1	136	14.2	3.273	<13.00	41.00	>18.00	Pass
	2472	Test Step 1	148	14.1	3.274		41.00		
802.11n (HT20)	2412	Test Step 1	48	13.8	3.542	<13.00	23.00	>18.00	Pass
	2472	Test Step 1	69	14.1	2.271		32.00		

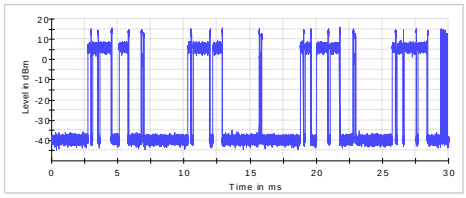
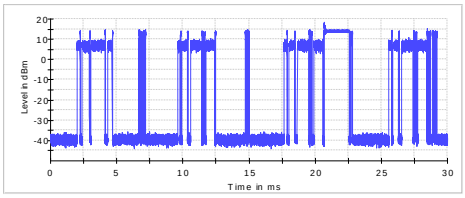
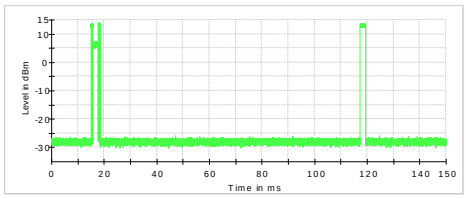
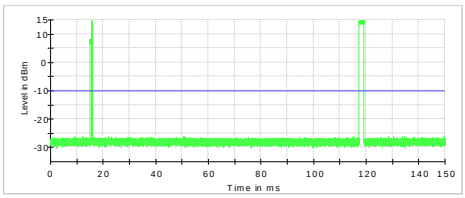
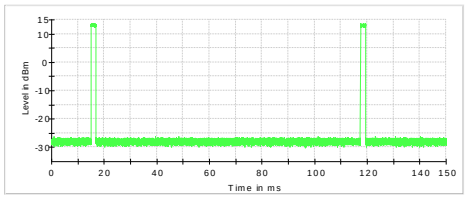
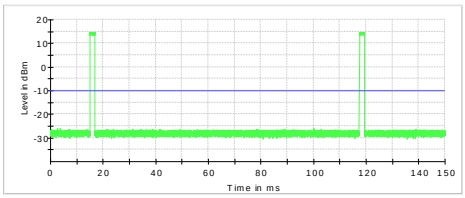
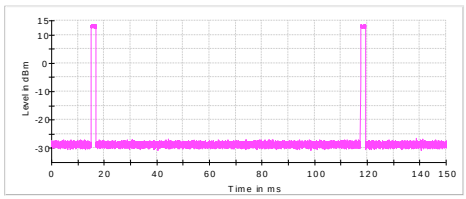
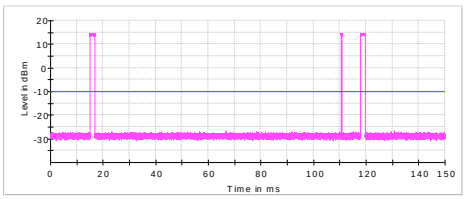
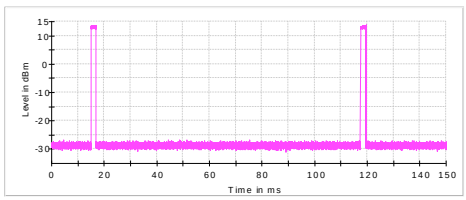
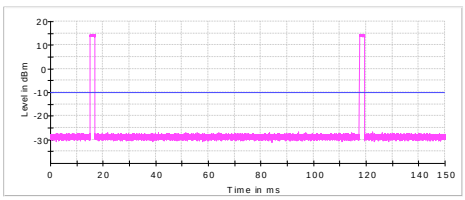
Type	Frequency (MHz)	Test Step	No. of Bursts	Max Burst Power (dBm)	Short Signaling (%)	Limit (%)	Result
802.11b	2412	Test Step 2	2	12.4	2.8	<10.00	Pass
		Test Step 2_2nd	2	12.6	2.8		
		Test Step 3	2	12.7	2.8		
		Test Step 3_3nd	2	12.7	2.8		
	2472	Test Step 2	2	13.6	2.8	<10.00	Pass
		Test Step 2_2nd	2	13.7	2.8		
		Test Step 3	2	13.7	2.8		
		Test Step 3_3nd	2	13.7	2.8		
802.11g	2412	Test Step 2	7	14.0	3.6	<10.00	Pass
		Test Step 2_2nd	2	13.2	3.0		
		Test Step 3	2	13.2	3.0		
		Test Step 3_3nd	2	13.2	3.0		
	2472	Test Step 2	1	9.7	0.6	<10.00	Pass
		Test Step 2_2nd	2	14.9	3.0		
		Test Step 3	2	14.9	3.0		
		Test Step 3_3nd	2	14.9	3.0		
802.11n (HT20)	2412	Test Step 2	5	13.0	6.6	<10.00	Pass
		Test Step 2_2nd	2	13.1	3.8		
		Test Step 3	2	13.1	3.8		
		Test Step 3_3nd	3	13.1	4.4		
	2472	Test Step 2	4	14.2	3.8	<10.00	Pass
		Test Step 2_2nd	2	14.2	3.8		
		Test Step 3	3	14.2	4.4		
		Test Step 3_3nd	2	14.2	3.8		

Test plot as follows:



802.11b		
Step1		
Step2		
Step2_2		
Step3		
Step3_3		
	CH01	CH13

802.11g		
Step1		
Step2		
Step2_2		
Step3		
Step3_3		
	CH01	CH13

802.11n(H20)		
Step1		
Step2		
Step2_2		
Step3		
Step3_3		
	CH01	CH13

5.8. Recever Blocking

LIMIT

ETSI EN 300 328 Sub-clause 4.3.2.11

Performance Criteria:The minimum performance criterion shall be a PER less than or equal to 10 %. The manufacturer may declare alternative performance criteria as long as that is appropriate for the intended use of the equipment

Receiver Category 1: Adaptive equipment with a maximum RF output power greater than 10 dBm e.i.r.p. shall be considered as receivercategory 1 equipment.

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 2)	Type of blocking signal
P_{min} + 6 dB	2 380 2 503,5	-53	CW
P_{min} + 6 dB	2 300 2 330 2 360	-47	CW
P_{min} + 6 dB	2 523,5 2 553,5 2 583,5 2 613,5 2 643,5 2 673,5	-47	CW
NOTE 1: P_{min} is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined in clause 4.3.2.11.3 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 levels have to be corrected by the actual antenna assembly gain.			

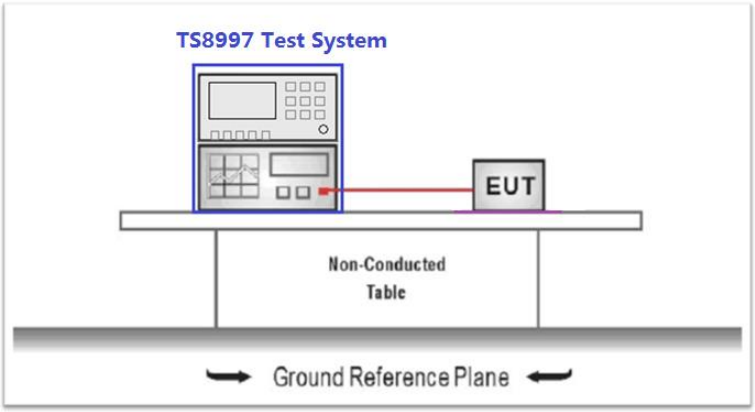
Receiver Category 2: Non-adaptive equipment with a Medium Utilization (MU) factor greater than 1 % and less than or equal to 10 % oradaptive equipment with a maximum RF output power of 10 dBm e.i.r.p. shall be considered as receiver category 2equipment.

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 2)	Type of blocking signal
P_{min} + 6 dB	2 380 2 503,5	-57	CW
P_{min} + 6 dB	2 300 2 583,5	-47	CW
NOTE 1: P_{min} is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined in clause 4.3.2.11.3 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 levels have to be corrected by the actual antenna assembly gain.			

Receiver Category 3: Non-adaptive equipment with a maximum Medium Utilization (MU) factor of 1 % or adaptive equipment with amaximum RF output power of 0 dBm e.i.r.p. shall be considered as receiver category 3 equipment.

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 2)	Type of blocking signal
P_{min} + 12 dB	2 380 2 503,5	-57	CW
P_{min} + 12 dB	2 300 2 583,5	-47	CW
NOTE 1: P_{min} is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined in clause 4.3.2.11.3 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 levels have to be corrected by the actual antenna assembly gain.			

TEST CONFIGURATION



TEST PROCEDURE

1. The test conditions.

☒ Normal condition ☐Extreme conditions

2.Receiver Blocking :Please refer to ETSI EN 300 328 Sub-clause 5.4.11.2.1 for the measurement method.

TEST MODE:

Normal operation

TEST RESULTS

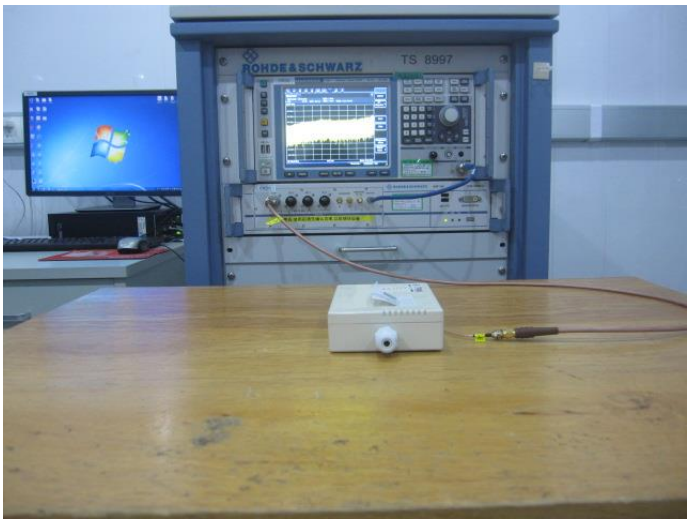
☒ **Passed** ☐ **Not Applicable**

Operating Channel	Pmin (dBm)	Wanted signal power (dBm)	Blocking signal Frequency (MHz)	Blocking signal power (dBm)	Test PER(%)	Limit(%)	Result
Lowest	-91.86	-85.86	2300.0	-47	0.31	<10.00	Pass
			2330.0		0.27		
			2360.0		0.42		
			2380.0	-53	0.43	<10.00	Pass
Highest	-91.76	-85.76	2503.5	-53	0.47	<10.00	Pass
			2523.5	-47	0.36	<10.00	Pass
			2553.5		0.31		
			2583.5		0.27		
			2613.5		0.25		
			2643.5		0.22		
			2673.5		0.26		

Note:
1. According to ETSI EN 300328 clause 5.4.11.1. Only the lowest data rate(802.11b) mode was tested and recorded.
2. The equipment belong to Receiver Category 1.
3. Wanted signal power (dBm) = Pmin + 6dBm

6. Test Setup Photos of the EUT

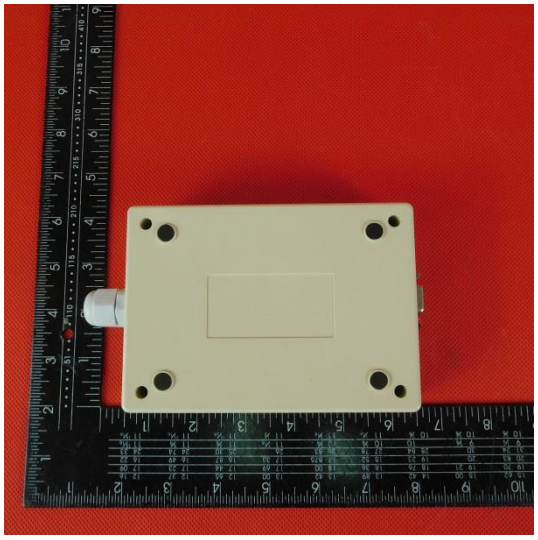
Conducted measurements

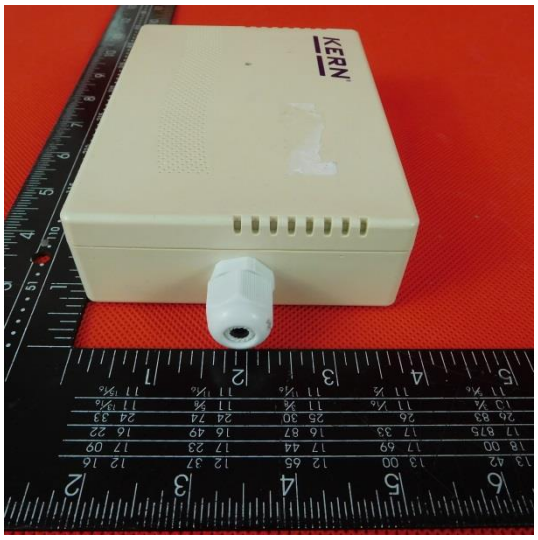


Radiated measurements

7. External and Internal Photos of the EUT

External Photo

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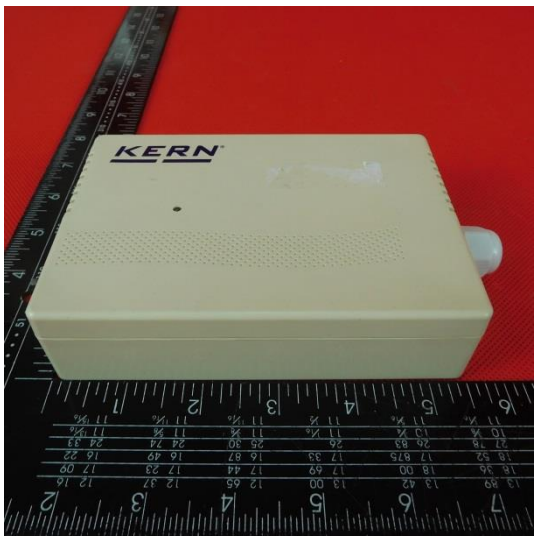
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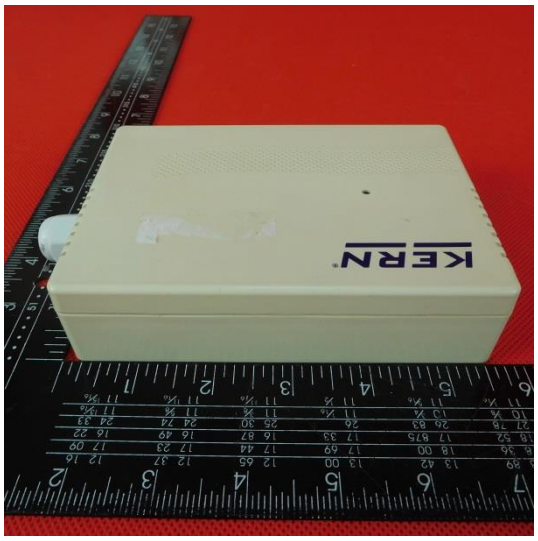
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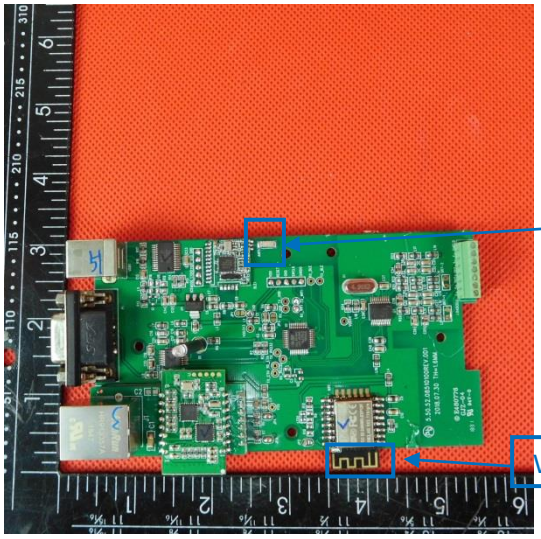
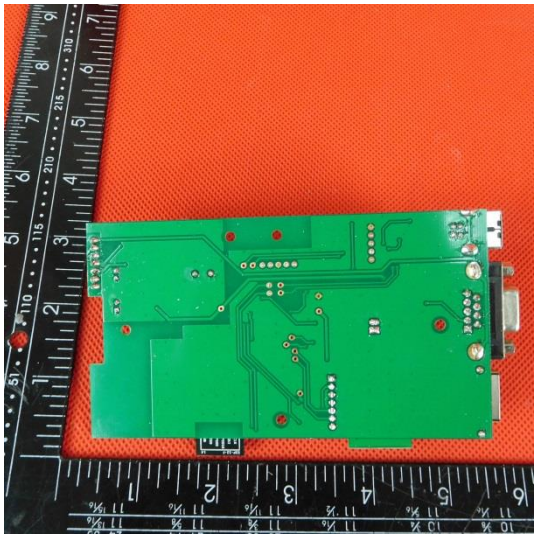
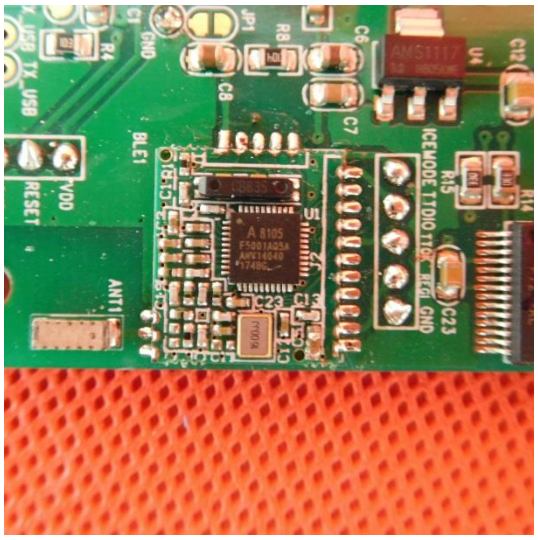
Internal Photo







----------End of Report----------