RADIO TEST REPORT

For

GUANGZHOU YEROO STEEL STRUCTURE CO.,LTD

Bench with solar system

Test Model: YR-SPP

Prepared for	:	GUANGZHOU YEROO STEEL STRUCTURE CO.,LTD
Address	:	RM904 North Tower, New World Times Center, Guangyuan Dong Road, Guangzhou, China
Prepared by	:	Shenzhen AOCE Electronic Technology Service Co., Ltd
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Date of receipt of test sample	:	June 24, 2025
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	June 24, 2025~July 03, 2025
Date of Report	:	July 03, 2025

RADIO TEST REPORT
ETSI EN 300 328 V2.2.2 (2019-07)
Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques

Report Reference No.	**:**	**AOC250630102E**
Date of Issue	:	July 03, 2025
Testing Laboratory Name	**:**	**Shenzhen AOCE Electronic Technology Service Co., Ltd**
Address	:	Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China
Testing Location/ Procedure.....	:	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's Name.....	**:**	**GUANGZHOU YEROO STEEL STRUCTURE CO.,LTD**
Address	:	RM904 North Tower, New World Times Center, Guangyuan Dong Road, Guangzhou, China
Test Specification		
Standard	:	ETSI EN 300 328 V2.2.2 (2019-07)
Test Report Form No.	:	AOCEMC-1.0
TRF Originator.....	:	Shenzhen AOCE Electronic Technology Service Co., Ltd
Master TRF	:	Dated 2017-09

Test Item Description.	**:**	**Bench with solar system**
Trade Mark.....	:	YEROO
Test Model	:	YR-SPP
Ratings	:	Battery capacity: 12.8V, 44Ah, 563.2Wh Input: DC 12V, 10A DC Output*2: USB-A(QC3.0): DC 5V, 3A; 9V, 2A; 12V, 1.5A; Type-C(PD3.0): DC 5V, 3A; 9V, 3A; 12V, 2.5A;3.3V-11V, 3A Wireless output*2: 5W/ 7.5W/ 10W/ 15W
Result …….....	**:**	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Johnson Wang/ File administrators	Joey Liu/ Technique principal	Murry Yu/ Manager

RADIO -- TEST REPORT

Test Report No. : AOC250630102E	July 03, 2025 Date of issue

Test Model.....	: YR-SPP
EUT.....	: Bench with solar system
Applicant.....	**: GUANGZHOU YEROO STEEL STRUCTURE CO.,LTD**
Address.....	: RM904 North Tower, New World Times Center, Guangyuan Dong Road, Guangzhou, China
Telephone.....	: /
Fax.....	: /
Manufacturer.....	**: FOSHAN YEROO ADVERTISING ENGINEERING CO., LTD**
Address.....	: No.23 Qianjinzhong Road, Guanyao, Shishan Town, Nanhai District, Foshan, China
Telephone.....	: /
Fax.....	: /
Factory.....	**: FOSHAN YEROO ADVERTISING ENGINEERING CO., LTD**
Address.....	: No.23 Qianjinzhong Road, Guanyao, Shishan Town, Nanhai District, Foshan, China
Telephone.....	: /
Fax.....	: /

Test Result	**Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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Test Report Description Page

1. GENERAL INFORMATION

1.1. Product Description for Equipment Under Test (EUT)

EUT	:	Bench with solar system
Test Model	:	YR-SPP
Hardware Version	:	V1.0
Software Version	:	V1.0

WIFI(2.4G Band)	:	
Frequency Range	:	2412MHz ~ 2472MHz
Channel Spacing	:	5MHz
Channel Number	:	13 Channel for 20MHz bandwidth(2412~2472MHz) 9 channels for 40MHz bandwidth(2422~2462MHz)
Modulation Type	:	802.11b: DSSS; 802.11g/n: OFDM
Antenna Type	:	PIFA Antenna
Antenna Gain	:	1.3 dBi

1.2. Objective

This Type approval report is prepared on behalf of **GUANGZHOU YEROO STEEL STRUCTURE CO.,LTD** in accordance with ETSI EN 300 328 V2.2.2 (2019-07), Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques.

The objective is to determine compliance with ETSI EN 300 328 V2.2.2 (2019-07).

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

No Related Submittals.

1.4. Test Methodology

All measurements contained in this report were conducted with ETSI EN 300 328 V2.2.2 (2019-07)

1.6. Support Equipment List

Manufacturer	Description	Model	Serial Number	Certificate
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1.7. External I/O

I/O Port Description	Quantity	Cable
USB	1	--

1.8. List Of Measuring Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	X-series USB Peak and Average	Agilent	U2021XA	MY54080022	2024-10-26	2025-10-25
2	4 CH. Simultaneous Sampling 14	Agilent	U2531A	MY54080016	2024-10-26	2025-10-25
3	Test Software	Ascentest	AT890-SW	20160630	N/A	N/A
4	RF Control Unit	Ascentest	AT890-RFB	N/A	2024-10-26	2025-10-25
5	ESA-E SERIES SPECTRUM	Agilent	E4407B	MY41440754	2024-10-26	2025-10-25
6	MXA Signal Analyzer	Agilent	N9020A	MY49100040	2024-10-26	2025-10-25
7	SPECTRUM ANALYZER	R&S	FSP	100503	2024-10-26	2025-10-25
8	MXG Vector Signal Generator	Agilent	N5182A	MY47071151	2024-10-26	2025-10-25
9	ESG VECTOR SIGNAL	Agilent	E4438C	MY42081396	2024-10-26	2025-10-25
10	PSG Analog Signal Generator	Agilent	E8257D	MY4520521	2024-10-26	2025-10-25
11	Universal Radio Communication	R&S	CMU 200	105788	2024-10-26	2025-10-25
12	WIDEBAND RADIO	R&S	CMW 500	103818	2024-10-26	2025-10-25
13	RF Control Unit	Tonscend	JS0806-1	N/A	2024-10-26	2025-10-25
14	DC Power Supply	Agilent	E3642A	N/A	2024-10-26	2025-10-25
15	LTE Test Software	Tonscend	JS1120-1	N/A	N/A	N/A
16	Temperature & Humidity Chamber	GUANGZHOU	GDS-100	70932	2024-10-26	2025-10-25
17	DC Source	CHROMA	62012P-80-60	34782951	2024-10-26	2025-10-25
18	RF Filter	Micro-Tronics	BRC50718	S/N-017	2024-10-26	2025-10-25
19	RF Filter	Micro-Tronics	BRC50719	S/N-011	2024-10-26	2025-10-25
20	RF Filter	Micro-Tronics	BRC50720	S/N-011	2024-10-26	2025-10-25
21	RF Filter	Micro-Tronics	BRC50721	S/N-013	2024-10-26	2025-10-25
22	RF Filter	Micro-Tronics	BRM50702	S/N-195	2024-10-26	2025-10-25
23	Splitter/Combiner	Micro-Tronics	PS2-15	CB11-20	2024-10-26	2025-10-25
24	Splitter/Combiner	Micro-Tronics	CB11-20	N/A	2024-10-26	2025-10-25
25	Attenuator	Micro-Tronics	PAS-8-10	S/N23466	2024-10-26	2025-10-25
26	Exposure Level Tester	Narda	ELT-400	N-0713	2024-10-26	2025-10-25
27	B-Field Probe	Narda	ELT-400	M-1154	2024-10-26	2025-10-25
28	3m Semi Anechoic Chamber	SIDT	SAC-3M	03CH03-HY	2024-10-26	2025-10-25
29	Positioning Controller	MF	MF-7082	/	2024-10-26	2025-10-25
30	EMI Test Software	AUDIX	E3	N/A	2024-10-26	2025-10-25
31	EMI Test Receiver	R&S	ESR 7	101181	2024-10-26	2025-10-25
32	AMPLIFIER	QuieTek	QTK-A2525G	CHM10809065	2024-10-26	2025-10-25
33	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	00005	2024-10-26	2025-10-25
34	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2024-10-26	2025-10-25
35	Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1925	2024-10-26	2025-10-25
36	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	791	2024-10-26	2025-10-25
37	Broadband Preamplifier	SCHWARZBECK	BBV 9719	9719-025	2024-10-26	2025-10-25
38	RF Cable-R03m	Jye Bao	RG142	CB021	2024-10-26	2025-10-25
39	RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	2024-10-26	2025-10-25

1.9. Measurement Uncertainty

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

Parameter	Uncertainty
Occupied Channel Bandwidth	5 %
RF output power, conducted	1,5 dB
Power Spectral Density, conducted	3 dB
Unwanted Emissions, conducted	3 dB
All emissions, radiated	6 dB
Temperature	1 °C
Humidity	5 %
DC and low frequency voltages	3 %
Time	5 %
Duty Cycle	5 %

1.10. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	25
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

1.11. Description Of Test Modes

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

Test Mode
Mode 1: Transmit by 802.11b
Mode 2: Transmit by 802.11g
Mode 3: Transmit by 802.11n(20MHz)
Mode 4: Transmit by 802.11n(40MHz)
Mode 5: Receive by 802.11b
Mode 6: Receive by 802.11g
Mode 7: Receive by 802.11n(20MHz)
Mode 8: Receive by 802.11n(40MHz)

Note:

(1) For portable device, radiated spurious emission was verified over X, Y, Z Axis, and shown the worst case on this report.

(2) Regard to the frequency band operation for systems using Wide Band modulation: the lowest, middle, highest frequency channel for conducted test, and the lowest, highest frequency channel for radiation spurious test.

(3) The extreme test condition for voltage and temperature were declared by the manufacturer.

2. SYSTEM TEST CONFIGURATION

2.1. Justification

The system was configured for testing in engineering mode.

2.2. EUT Exercise Software

N/A.

2.3. Special Accessories

N/A.

2.4. Block Diagram/Schematics

Please refer to the related document.

2.5. Equipment Modifications

Shenzhen AOCE Electronic Technology Service Co., Ltd has not done any modification on the EUT.

2.6. Configuration of Test Setup

Please refer to the test setup photo.

3. SUMMARY OF TEST RESULT

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

Technical requirements for the equipment using wide band modulations other than FHSS:

Performed Test Item	Normative References	Test Performed	Deviation
RF Output Power & Receiver Category	ETSI EN 300 328 V2.2.2 (2019-07)	Yes	No
Power Spectral Density	ETSI EN 300 328 V2.2.2 (2019-07)	Yes	No
Duty cycle, Tx-Sequence, Tx-gap	ETSI EN 300 328 V2.2.2 (2019-07)	N/A	N/A
Medium Utilisation (MU) factor	ETSI EN 300 328 V2.2.2 (2019-07)	N/A	N/A
Adaptivity	ETSI EN 300 328 V2.2.2 (2019-07)	Yes	No
Occupied Channel Bandwidth	ETSI EN 300 328 V2.2.2 (2019-07)	Yes	No
Transmitter unwanted emissions in the out-of-band domain	ETSI EN 300 328 V2.2.2 (2019-07)	Yes	No
Transmitter unwanted emissions in the spurious domain	ETSI EN 300 328 V2.2.2 (2019-07)	Yes	No
Receiver Spurious Emissions	ETSI EN 300 328 V2.2.2 (2019-07)	Yes	No
Receiver Blocking	ETSI EN 300 328 V2.2.2 (2019-07)	Yes	No

Note:
1. The EUT can operate in an adaptive mode, and can't operate in a non-adaptive mode which is stated by the supplier.
2. The EUT is equipment which using wide band modulations other than FHSS. It is an adaptive equipment which can't operate in non-adaptive mode.

4. RF OUTPUT POWER

4.1. Limit

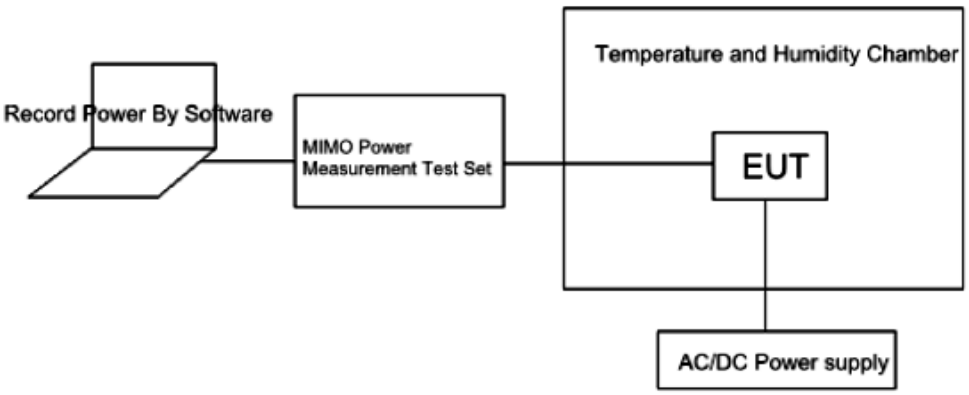
For adaptive equipment using wide band modulations other than FHSS, the maximum RF output power shall be 20 dBm.

The maximum RF output power for non-adaptive equipment shall be declared by the supplier and shall not exceed 20 dBm. For non-adaptive equipment using wide band modulations other than FHSS, the maximum RF output power shall be equal to or less than the value declared by the supplier.

This limit shall apply for any combination of power level and intended antenna assembly.

4.2. Test Setup

For Conducted Measurement



4.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2 (2019-07) Clause 5.4.2

Step 1:

• The fast power sensor use the following setting: Sample speed 1 MS/s.

Step 2:

• Connect the power sensor to the transmit port, sample the transmit signal and store the raw data.Use these stored samples in all following steps.

Step 3:

• Find the start and stop times of each burst in the stored measurement samples.

Step 4:

• Between the start and stop times of each individual burst calculate the RMS power over the burst. Save these Pburst values, as well as the start and stop times for each burst.

Step 5:

• The highest of all Pburst values (value "A" in dBm) will be used for maximum e.i.r.p. calculations.

Step 6:

• Add the (stated) antenna assembly gain "G" in dBi of the individual antenna.
• If applicable, add the additional beamforming gain "Y" in dB.

The RF Output Power (P) shall be calculated using the formula below:
P = A + G + Y

4.4. Test Result

Pass

***Note: 20 bursts had been captured for power measurement.

Product	:	YR-SPP
Test Item	:	RF Output Power
Test Mode	:	Mode 1: Transmit by 802.11b

Test Conditions		Frequency (MHz)	RF Output Power EIRP (dBm)	Limit (dBm)
Tnom (25℃)	Vnom (DC 12V)	2412	14.30	20
		2442	14.43	
		2472	14.55	
Tmax (55℃)	Vnom (DC 12V)	2412	14.21	20
		2442	14.21	
		2472	14.34	
Tmin (-10℃)	Vnom (DC 12V)	2412	14.24	20
		2442	14.39	
		2472	14.38	

Product	:	YR-SPP
Test Item	:	RF Output Power
Test Mode	:	Mode 2: Transmit by 802.11g

Test Conditions		Frequency (MHz)	RF Output Power EIRP (dBm)	Limit (dBm)
Tnom (25℃)	Vnom (DC 12V)	2412	13.19	20
		2442	13.29	
		2472	13.37	
Tmax (55℃)	Vnom (DC 12V)	2412	13.05	20
		2442	13.08	
		2472	13.21	
Tmin (-10℃)	Vnom (DC 12V)	2412	13.14	20
		2442	13.19	
		2472	13.31	

Product	:	YR-SPP
Test Item	:	RF Output Power
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Test Conditions		Frequency (MHz)	RF Output Power EIRP (dBm)	Limit (dBm)
Tnom (25℃)	Vnom (DC 12V)	2412	13.10	20
		2442	13.20	
		2472	13.33	
Tmax (55℃)	Vnom (DC 12V)	2412	12.95	20
		2442	13.15	
		2472	13.23	
Tmin (-10℃)	Vnom (DC 12V)	2412	13.08	20
		2442	13.11	
		2472	13.25	

Product	:	YR-SPP
Test Item	:	RF Output Power
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Test Conditions		Frequency (MHz)	RF Output Power EIRP (dBm)	Limit (dBm)
Tnom (25℃)	Vnom (DC 12V)	2422	10.98	20
		2442	11.06	
		2462	11.12	
Tmax (55℃)	Vnom (DC 12V)	2422	10.80	20
		2442	10.96	
		2462	11.04	
Tmin (-10℃)	Vnom (DC 12V)	2422	10.89	20
		2442	11.01	
		2462	11.01	

4.5. Receiver Category

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

Receiver Category 2: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.

Receiver Category 3: 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.

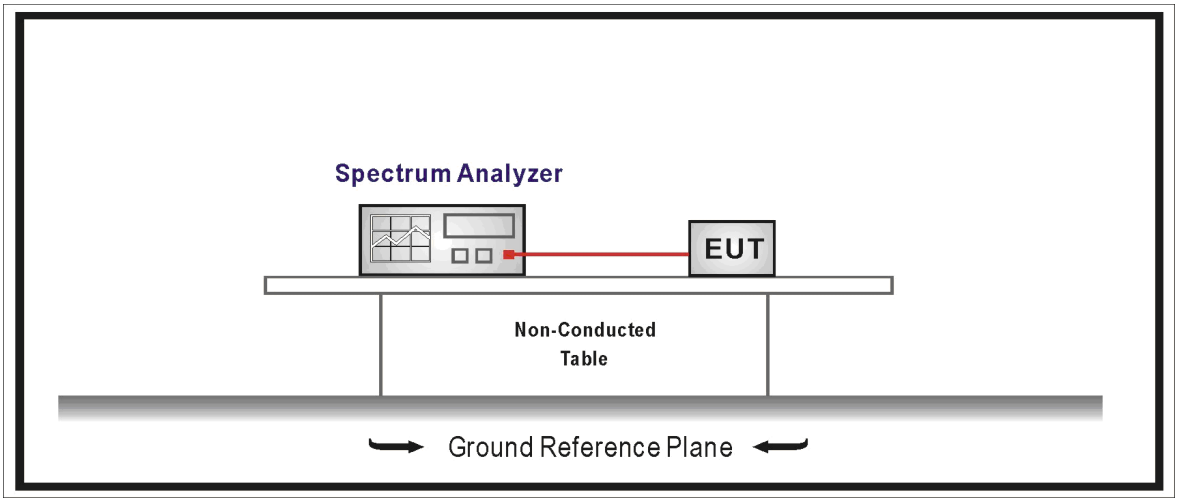
As this an adaptivity device with a maximum power of 13.31dBm, **it belongs to receiver category 1**.

5. POWER SPECTRAL DENSITY

5.1. Limit

For equipment using wide band modulations other than FHSS, the maximum Power Spectral Density is limited to 10dBm per MHz.

5.2. Test Setup



5.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2 (2019-07) Clause 5.4.3

Step 1:

Connect the UUT to the spectrum analyzer and use the following settings:

- Start Frequency: 2 400 MHz
- Stop Frequency: 2 483,5 MHz
- Resolution BW: 10 kHz
- Video BW: 30 kHz
- Sweep Points: > 8 350
- Detector: RMS
- Trace Mode: Max Hold
- Sweep time: Auto

For non-continuous signals, wait for the trace to be completed. Save the (trace) data set to a file.

Step 2:

For each frequency point, add up the amplitude (power) values for the different transmit chains and use this as the new data set.

Step 3:

Add up the values for amplitude (power) for all the samples in the file.

Step 4:

Normalize the individual values for amplitude so that the sum is equal to the RF Output Power (e.i.r.p.).

Step 5:

Starting from the first sample in the file (lowest frequency), add up the power of the following samples representing a 1 MHz segment and record the results for power and position (i.e. sample #1 to #100). This is the Power Spectral Density (e.i.r.p.) for the first 1 MHz segment which shall be recorded.

Step 6:

Shift the start point of the samples added up in step 5 by 1 sample and repeat the procedure in step 5 (i.e. sample #2 to #101).

Step 7:

Repeat step 6 until the end of the data set and record the radiated Power Spectral Density values for each of the 1 MHz segments. From all the recorded results, the highest value is the maximum Power Spectral Density for the UUT.

5.4. Test Result

Product	:	YR-SPP
Test Item	:	Maximum Spectral Power Density
Test Mode	:	Mode 1: Transmit by 802.11b

Frequency (MHz)	Total Power Density (dBm/MHz)	Limit (dBm/MHz)
2412	4.81	10.00
2442	4.90	10.00
2472	4.98	10.00

Product	:	YR-SPP
Test Item	:	Maximum Spectral Power Density
Test Mode	:	Mode 2: Transmit by 802.11g

Frequency (MHz)	Total Power Density (dBm/MHz)	Limit (dBm/MHz)
2412	1.13	10.00
2442	1.22	10.00
2472	1.33	10.00

Product	:	YR-SPP
Test Item	:	Maximum Spectral Power Density
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Frequency (MHz)	Total Power Density (dBm/MHz)	Limit (dBm/MHz)
2412	1.10	10.00
2442	1.17	10.00
2472	1.24	10.00

Product	:	YR-SPP
Test Item	:	Maximum Spectral Power Density
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

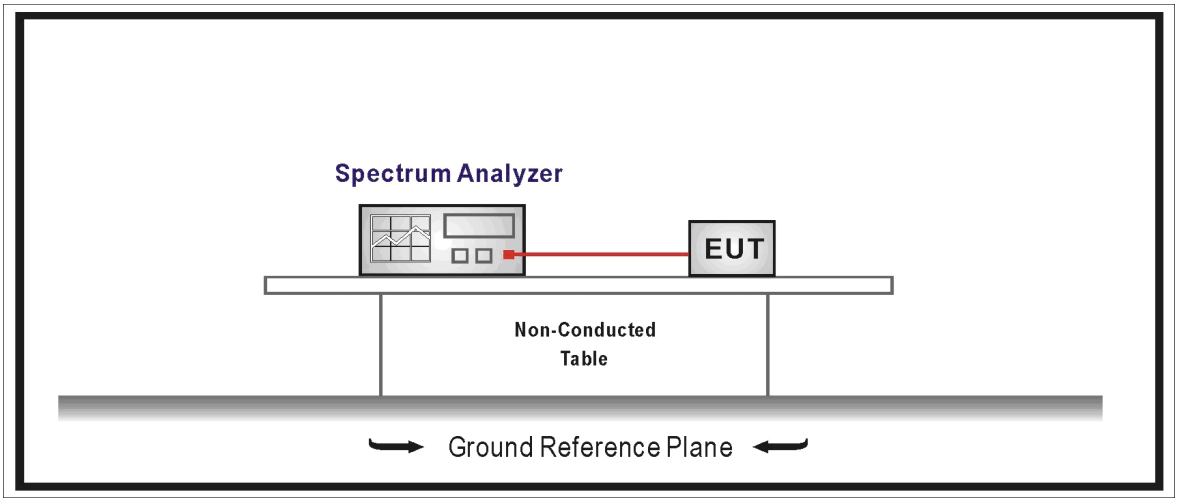
Frequency (MHz)	Total Power Density (dBm/MHz)	Limit (dBm/MHz)
2422	-4.58	10.00
2442	-4.54	10.00
2462	-4.46	10.00

6. DUTY CAOCLE, TX-SEQUENCE, TX-GAP

6.1. Limit

The Duty Cycle shall be equal to or less than the maximum value declared by the supplier.
The maximum Tx-sequence Time and the minimum Tx-gap Time shall be according to the formula below: Maximum Tx-Sequence Time = Minimum Tx-gap Time = M
where M is in the range of 3,5 ms to 10 ms.

6.2. Test Setup



6.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2 (2019-07) Clause 5.4.2

6.4. Test Result

These requirements apply to non-adaptive frequency hopping equipment or to adaptive frequency hopping equipment operating in a non-adaptive mode.
These requirements do not apply for equipment with a maximum declared RF Output power of less than 10dBm E.I.R.P. or for equipment when operating in a mode where the RF Output power is less than 10dBm E.I.R.P.
No applicable.

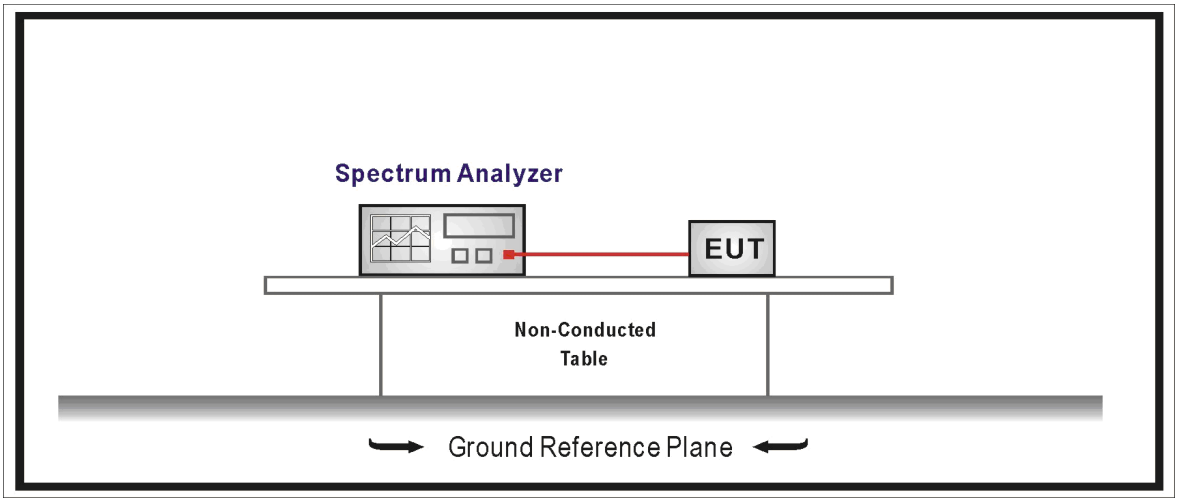
7. MEDIUM UTILISATION (MU) FACTOR

7.1. Limit

For non-adaptive equipment

The maximum Medium Utilisation factor for non-adaptive Frequency Hopping equipment shall be 10 %.

7.2. Test Setup



7.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2 (2019-07) Clause 5.4.2

7.4. Test Result

This requirement does not apply to adaptive equipment unless operating in a non-adaptive mode.
In addition, this requirement does not apply for equipment with a maximum declared RF Output power level of less than 10dBm E.I.R.P. or for equipment when operating in a mode where the RF Output power is less than 10dBm E.I.R.P.
No applicable.

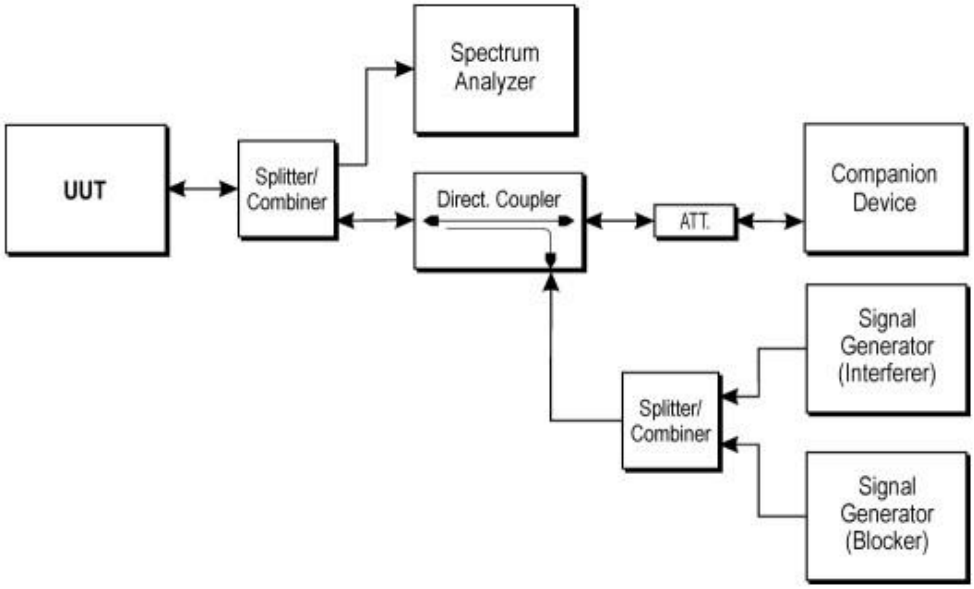
8. ADAPTIVITY AND RECEIVER BLOCKING

8.1. Limit

Adaptivity Limit
☐ Non-LBT based Detect and Avoid --- The channel shall remain unavailable for a minimum time equal to 1 s after which the channel may be considered again as an 'available' channel; --- COT ≤ 40 ms; --- COT ≤ 60 ms; --- Idle Period shall be minimum 5% of COT with a minimum of 100us; --- Detection threshold level = -70dBm/MHz + 20 – Pout E.I.R.P (Pout in dBm);
☐ LBT based Detect and Avoid(Frame Based Equipment) --- The CCA observation time shall be not less than 20 us; --- The CCA time used by the equipment shall be declared by the supplier; --- COT = 1-10 ms; --- Idle Period = 5% of COT; --- Detection threshold level = -70dBm/MHz + 20 – Pout E.I.R.P (Pout in dBm);
☒ LBT based Detect and Avoid(Load Based Equipment) --- The CCA observation time shall be not less than 20 us; --- The CCA time used by the equipment shall be declared by the supplier; --- COT ≤ (13 / 32) * q ms; q = [4~32]; 1.625ms~13ms; --- R = number of clear idle slots are randomly [1~q]. Every time an Extended CCA is required and the 'R' value stored in a counter. --- Detection threshold level = -70dBm/MHz + 20 – Pout E.I.R.P (Pout in dBm);
☐ Short Control Signalling Transmissions: --- Short Control Signalling Transmissions shall have a maximum duty cycle of 10% within an observation period of 50ms.

8.2. Test Setup

Conducted measurements



8.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2 (2019-07) Clause 5.4.7

1) The EUT connect to a companion device during the test. Adjust the received signal level at the EUT to the value defined in table 6 of ETSI EN 300 328 V2.1.1 Clause 4.3.2.10.2
2) the analyzer shall be set as below: RBW=8MHz and VBW=28MHz.
3) Configure the EUT for normal transmission with a sufficiently high payload to allow demonstration of compliance of the adaptive mechanism on the channel being tested.
4) Adding the interference signal and blocking signal.
5) Record the data.

8.4. Test Result

Product	:	YR-SPP
Test Item	:	Adaptivity and Receiver Blocking
Test Result	:	Pass

Summary Of Test Result		
Test Mode	Channel	Conclusion
802.11b	Low	Pass
	High	Pass
802.11g	Low	Pass
	High	Pass
802.11n20	Low	Pass
	High	Pass
802.11n40	Low	Pass
	High	Pass
Note: All modulation of EUT which maximum output power is more than 10dbm have been tested.		

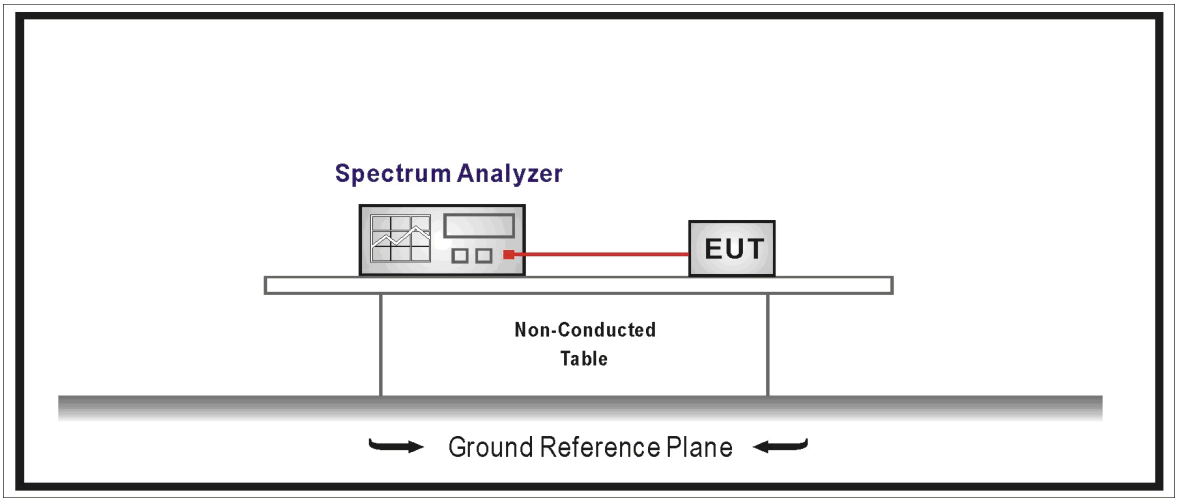
9. OCCUPIED CHANNEL BANDWIDTH

9.1. Limit

The Occupied Channel Bandwidth shall fall completely within the band given in 2.4GHz to 2.4835GHz.

In addition, for non-adaptive systems using wide band modulations other than FHSS and with e.i.r.p greater than 10 dBm, the occupied channel bandwidth shall be less than 20 MHz.

9.2. Test Setup



9.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2 (2019-07) Clause 5.4.8

Step 1:

Connect the UUT to the spectrum analyzer and use the following settings:

• Centre Frequency: The centre frequency of the channel under test

• Resolution BW: ~ 1 % of the span without going below 1 %

(we set RBW=400KHz for 802.11b/g/n20 and 820KHz for 802.11n40)

• Video BW: 3 × RBW (we set VBW=1.2MHz for 802.11b/g/n20 and 2.4MHz for 802.11n40)

• Frequency Span: 2 × Occupied Channel Bandwidth

(we set Span=40MHz(for 802.11b/g/n20) & 80MHz(for 802.11n40))

• Detector Mode: RMS

• Trace Mode: Max Hold

Step 2:

Wait until the trace is completed. Find the peak value of the trace and place the analyzer marker on this peak.

Step 3:

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

9.4. Test Result

Product	:	YR-SPP
Test Item	:	Occupied Channel Bandwidth
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit
01	2412	12.44	Within the band 2400.0MHz~2483.5MHz
13	2472	12.50	

Product	:	YR-SPP
Test Item	:	Occupied Channel Bandwidth
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit
01	2412	16.72	Within the band 2400.0MHz~2483.5MHz
13	2472	16.69	

Product	:	YR-SPP
Test Item	:	Occupied Channel Bandwidth
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit
01	2412	17.55	Within the band 2400.0MHz~2483.5MHz
13	2472	17.58	

Product	:	YR-SPP
Test Item	:	Occupied Channel Bandwidth
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit
03	2422	36.10	Within the band 2400.0MHz~2483.5MHz
11	2462	36.05	

Test Result	:	Pass

10. TRANSMITTER UNWANTED EMISSIONS IN THE OUT-OF-BAND DOMAIN

10.1. Limit

The transmitter unwanted emissions in the out-of-band domain but outside the allocated band, shall not exceed the values provided by the mask in figure 3.

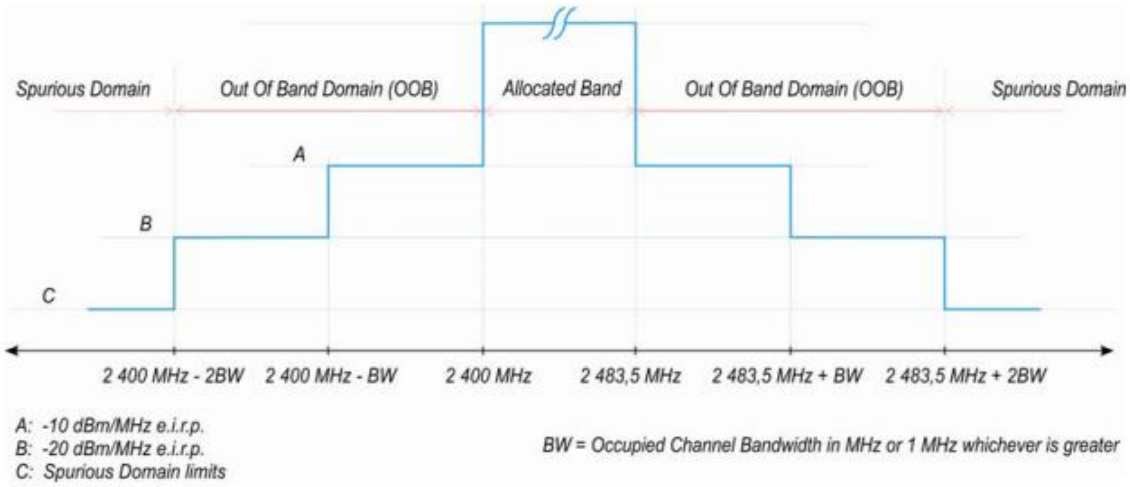
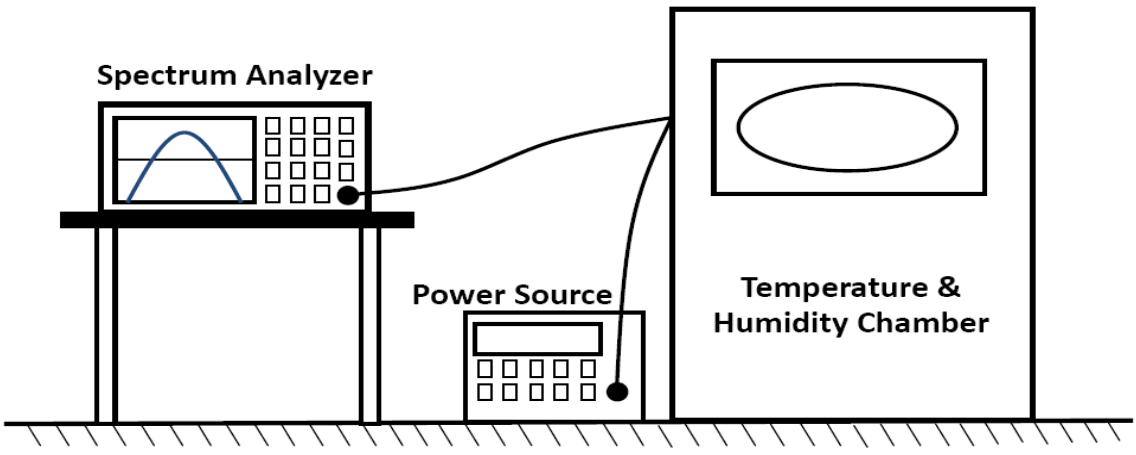


Figure 3: Transmit mask

10.2. Test Setup

For Conducted Measurement



10.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2 (2019-07) Clause 5.4.9

Step 1:

• Connect the UUT to the spectrum analyzer and use the following settings:

- Centre Frequency: 2 484 MHz
- Span: 0 Hz
- Resolution BW: 1 MHz
- Filter mode: Channel filter
- Video BW: 3 MHz
- Detector Mode: RMS
- Trace Mode: Clear / Write
- Sweep Mode: Continuous
- Sweep Points: 5 000
- Trigger Mode: Video trigger

NOTE 1: In case video triggering is not possible, an external trigger source may be used.

- Sweep Time: Suitable to capture one transmission burst

Step 2: (segment 2 483,5 MHz to 2 483,5 MHz + BW)

• Adjust the trigger level to select the transmissions with the highest power level.

• For frequency hopping equipment operating in a normal hopping mode, the different hops will result in signal bursts with different power levels. In this case the burst with the highest power level shall be selected.

• Set a window (start and stop lines) to match with the start and end of the burst and in which the RMS power shall be measured using the Time Domain Power function.

• Select RMS power to be measured within the selected window and note the result which is the RMS power within this 1 MHz segment (2 483,5 MHz to 2 484,5 MHz). Compare this value with the applicable limit provided by the mask.

• Increase the centre frequency in steps of 1 MHz and repeat this measurement for every 1 MHz segment within the range 2 483,5 MHz to 2 483,5 MHz + BW. The centre frequency of the last 1 MHz segment shall be set to 2 483,5 MHz + BW - 0,5 MHz (which means this may partly overlap with the previous 1 MHz segment).

Step 3: (segment 2 483,5 MHz + BW to 2 483,5 MHz + 2BW)

• Change the centre frequency of the analyzer to 2 484 MHz + BW and perform the measurement for the first 1 MHz segment within range 2 483,5 MHz + BW to 2 483,5 MHz + 2BW. Increase the centre frequency in 1 MHz steps and repeat the measurements to cover this whole range. The centre frequency of the last 1 MHz segment shall be set to 2 483,5 MHz + 2 BW - 0,5 MHz.

Step 4: (segment 2 400 MHz - BW to 2 400 MHz)

• Change the centre frequency of the analyzer to 2 399,5 MHz and perform the measurement for the first 1 MHz segment within range 2 400 MHz - BW to 2 400 MHz Reduce the centre frequency in 1 MHz steps and repeat the measurements to cover this whole range. The centre frequency of the last 1 MHz segment shall be set to 2 400 MHz - 2BW + 0,5 MHz.

Step 5: (segment 2 400 MHz - 2BW to 2 400 MHz - BW)

• Change the centre frequency of the analyzer to 2 399,5 MHz - BW and perform the measurement for the first 1 MHz segment within range 2 400 MHz - 2BW to 2 400 MHz - BW. Reduce the centre frequency in 1 MHz steps and repeat the measurements to cover this whole range. The centre frequency of the last 1 MHz segment shall be set to 2 400 MHz - 2BW + 0,5 MHz.

Step 6:

• In case of conducted measurements on equipment with a single transmit chain, the declared antenna assembly gain "G" in dBi shall be added to the results for each of the 1 MHz segments and compared with the limits provided by the mask given in figures 1 or 3. If more than one antenna assembly is intended for this power setting, the antenna with the highest gain shall be considered.

• In case of conducted measurements on smart antenna systems (equipment with multiple transmit chains), the measurements need to be repeated for each of the active transmit chains. The declared antenna assembly gain "G" in dBi for a single antenna shall be added to these results. If more than one antenna assembly is intended for this power setting, the antenna with the highest gain shall be considered.

Comparison with the applicable limits shall be done using any of the options given below:

- Option 1: the results for each of the transmit chains for the corresponding 1 MHz segments shall be added. The additional beamforming gain "Y" in dB shall be added as well and the resulting values compared with the limits provided by the mask given in figures 1 or 3.
- Option 2: the limits provided by the mask given in figures 1 or 3 shall be reduced by 10 x log10(Ach) and the additional beamforming gain "Y" in dB. The results for each of the transmit chains shall be individually compared with these reduced limits.

NOTE 2: Ach refers to the number of active transmit chains.

It shall be recorded whether the equipment complies with the mask provided in figures 1 or 3.

10.4. Test Result

Product	:	YR-SPP
Test Item	:	Transmitter unwanted emissions in the out-of-band domain
Test Mode	:	Mode 1: Transmit by 802.11b

Frequency (MHz)	Test Conditions (℃)	Max measured Values (dBm/MHz)	Limit (dBm/MHz)
2400–2BW~ 2400-BW	25	-31.80	-20
2400–BW~2400	25	-21.98	-10
2483.5~ 2483.5+BW	25	-35.26	-10
2483.5+BW~ 2483.5+2BW	25	-55.40	-20

Product	:	YR-SPP
Test Item	:	Transmitter unwanted emissions in the out-of-band domain
Test Mode	:	Mode 2: Transmit by 802.11g

Frequency (MHz)	Test Conditions (℃)	Max measured Values (dBm/MHz)	Limit (dBm/MHz)
2400–2BW~ 2400-BW	25	-37.27	-20
2400–BW~2400	25	-21.90	-10
2483.5~ 2483.5+BW	25	-32.08	-10
2483.5+BW~ 2483.5+2BW	25	-52.85	-20

Product	:	YR-SPP
Test Item	:	Transmitter unwanted emissions in the out-of-band domain
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Frequency (MHz)	Test Conditions (℃)	Max measured Values (dBm/MHz)	Limit (dBm/MHz)
2400–2BW~ 2400-BW	25	-36.70	-20
2400–BW~2400	25	-21.28	-10
2483.5~ 2483.5+BW	25	-31.57	-10
2483.5+BW~ 2483.5+2BW	25	-52.62	-20

Product	:	YR-SPP
Test Item	:	Transmitter unwanted emissions in the out-of-band domain
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Frequency (MHz)	Test Conditions (℃)	Max measured Values (dBm/MHz)	Limit (dBm/MHz)
2400–2BW~ 2400-BW	25	-33.94	-20
2400–BW~2400	25	-18.67	-10
2483.5~ 2483.5+BW	25	-30.88	-10
2483.5+BW~ 2483.5+2BW	25	-50.11	-20

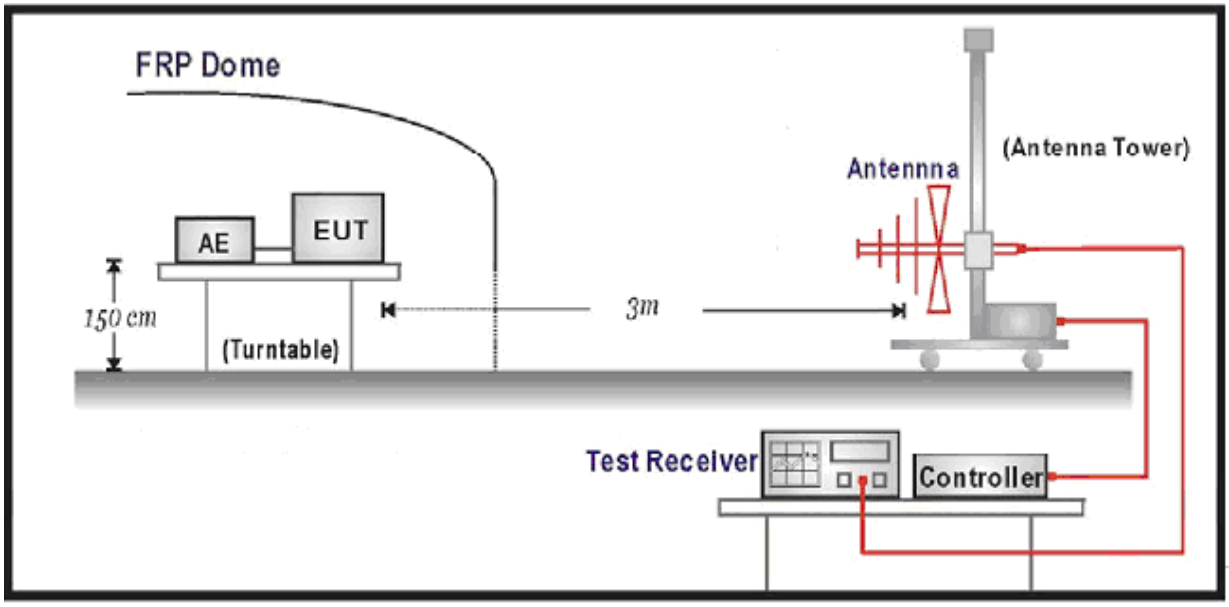
11. TRANSMITTER UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

11.1. Limit

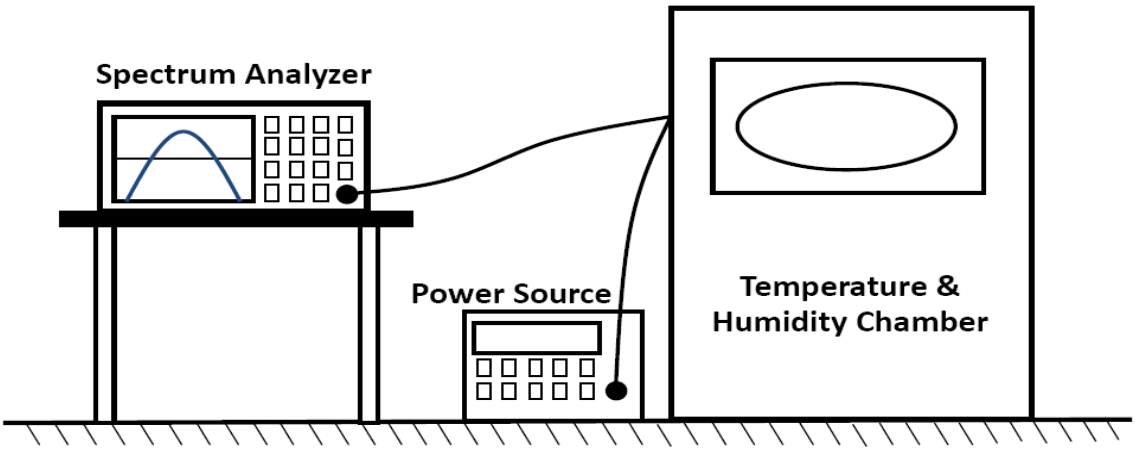
Transmitter Limits for Spurious Emissions		
Frequency Range	Maximum power E.R.P. (≤ 1GHz) E.I.R.P. (> 1GHz)	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 kHz
47 MHz to 74 MHz	-54 dBm	100 kHz
74 MHz to 87,5 MHz	-36 dBm	100 kHz
87,5 MHz to 118 MHz	-54 dBm	100 kHz
118 MHz to 174 MHz	-36 dBm	100 kHz
174 MHz to 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

11.2. Test Setup

For Radiated Measurement



For Conducted Measurement



11.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2 (2019-07) Clause 5.4.10

Step 1:

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

Step 2:

The emissions over the range 30 MHz to 1 000 MHz shall be identified.

Spectrum analyzer settings:

• Resolution bandwidth: 100 kHz

• Video bandwidth: 300 kHz

• Detector mode: Peak

• Trace Mode: Max Hold

• Sweep Points: ≥ 9 970

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

• Sweep time: For non continuous transmissions (duty cycle less than 100 %), the sweep time shall be sufficiently long, such that for each 100 kHz frequency step, the measurement time is greater than two transmissions of the UUT. For Frequency Hopping equipment operating in a normal operating (hopping not disabled) mode, the sweep time shall be further increased to capture multiple transmissions on the same hopping frequency in different hopping sequences. Allow the trace to stabilize. Any emissions identified during the sweeps above and that fall within the 6 dB range below the applicable limit or above, shall be individually measured using the procedure in clause 5.3.10.2.1.2 and compared to the limits given in tables 1 or 4.

Step 3:

The emissions over the range 1 GHz to 12,75 GHz shall be identified.

Spectrum analyzer settings:

• Resolution bandwidth: 1 MHz

• Video bandwidth: 3 MHz

• Detector mode: Peak

• Trace Mode: Max Hold

• Sweep Points: ≥ 11 750

NOTE 2: For spectrum analyzers not supporting this high number of sweep points, the frequency band may need to be segmented.

• Sweep time: For non continuous transmissions (duty cycle less than 100 %), the sweep time shall be sufficiently long, such that for each 1 MHz frequency step, the measurement time is greater than two transmissions of the UUT.

11.4. Test Result

Product	:	YR-SPP
Test Item	:	Transmitter spurious emissions
Test Mode	:	Mode 1: Transmit by 802.11b

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 01 (2412MHz)					
219.64	H	-63.03	-54.00	-9.03	PK
209.69	V	-69.39	-54.00	-15.39	PK
867.04	H	-65.61	-36.00	-29.61	PK
958.40	V	-65.69	-36.00	-29.69	PK
4823.54	H	-61.61	-30.00	-31.61	PK
4823.61	V	-64.81	-30.00	-34.81	PK
7235.57	H	-31.83	-30.00	-1.83	PK
7235.52	V	-47.25	-30.00	-17.25	PK
Channel 13 (2472MHz)					
123.83	H	-48.10	-36.00	-12.10	PK
147.41	V	-51.44	-36.00	-15.44	PK
951.93	H	-48.27	-36.00	-12.27	PK
872.68	V	-46.32	-36.00	-10.32	PK
4943.62	H	-41.06	-30.00	-11.06	PK
4943.51	V	-40.80	-30.00	-10.80	PK
7415.58	H	-45.23	-30.00	-15.23	PK
7415.50	V	-39.22	-30.00	-9.22	PK

Product	:	YR-SPP
Test Item	:	Transmitter spurious emissions
Test Mode	:	Mode 2: Transmit by 802.11g

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 01 (2412MHz)					
103.77	H	-68.68	-54.00	-14.68	PK
271.34	V	-45.08	-36.00	-9.08	PK
967.35	H	-51.94	-36.00	-15.94	PK
835.41	V	-68.22	-54.00	-14.22	PK
4823.86	H	-43.14	-30.00	-13.14	PK
4823.81	V	-39.60	-30.00	-9.60	PK
7235.79	H	-44.13	-30.00	-14.13	PK
7235.80	V	-39.97	-30.00	-9.97	PK
Channel 13 (2472MHz)					
241.03	H	-47.19	-36.00	-11.19	PK
107.11	V	-68.70	-54.00	-14.70	PK
844.60	H	-47.82	-36.00	-11.82	PK
805.05	V	-49.67	-36.00	-13.67	PK
4943.78	H	-40.77	-30.00	-10.77	PK
4943.84	V	-42.81	-30.00	-12.81	PK
7415.79	H	-38.93	-30.00	-8.93	PK
7415.83	V	-43.56	-30.00	-13.56	PK

Product	:	YR-SPP
Test Item	:	Transmitter spurious emissions
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 01 (2412MHz)					
212.38	H	-65.08	-54.00	-11.08	PK
104.86	V	-67.18	-54.00	-13.18	PK
915.87	H	-49.76	-36.00	-13.76	PK
818.37	V	-66.95	-54.00	-12.95	PK
4823.75	H	-43.47	-30.00	-13.47	PK
4823.84	V	-41.63	-30.00	-11.63	PK
7235.81	H	-43.23	-30.00	-13.23	PK
7235.83	V	-38.63	-30.00	-8.63	PK
Channel 13 (2472MHz)					
175.48	H	-69.82	-54.00	-15.82	PK
233.27	V	-46.41	-36.00	-10.41	PK
974.93	H	-50.44	-36.00	-14.44	PK
948.45	V	-50.70	-36.00	-14.70	PK
4943.77	H	-43.13	-30.00	-13.13	PK
4943.81	V	-41.92	-30.00	-11.92	PK
7415.83	H	-42.26	-30.00	-12.26	PK
7415.80	V	-41.00	-30.00	-11.00	PK

Product	:	YR-SPP
Test Item	:	Transmitter spurious emissions
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 03 (2422MHz)					
196.95	H	-69.65	-54.00	-15.65	PK
259.24	V	-46.74	-36.00	-10.74	PK
976.89	H	-49.79	-36.00	-13.79	PK
828.45	V	-68.08	-54.00	-14.08	PK
4843.77	H	-42.64	-30.00	-12.64	PK
4843.78	V	-40.78	-30.00	-10.78	PK
7265.79	H	-42.22	-30.00	-12.22	PK
7265.81	V	-41.49	-30.00	-11.49	PK
Channel 11 (2462MHz)					
194.52	H	-64.54	-54.00	-10.54	PK
218.46	V	-65.26	-54.00	-11.26	PK
808.94	H	-65.13	-54.00	-11.13	PK
804.75	V	-68.94	-54.00	-14.94	PK
4923.76	H	-41.18	-30.00	-11.18	PK
4923.79	V	-44.11	-30.00	-14.11	PK
7385.85	H	-40.83	-30.00	-10.83	PK
7385.82	V	-41.18	-30.00	-11.18	PK

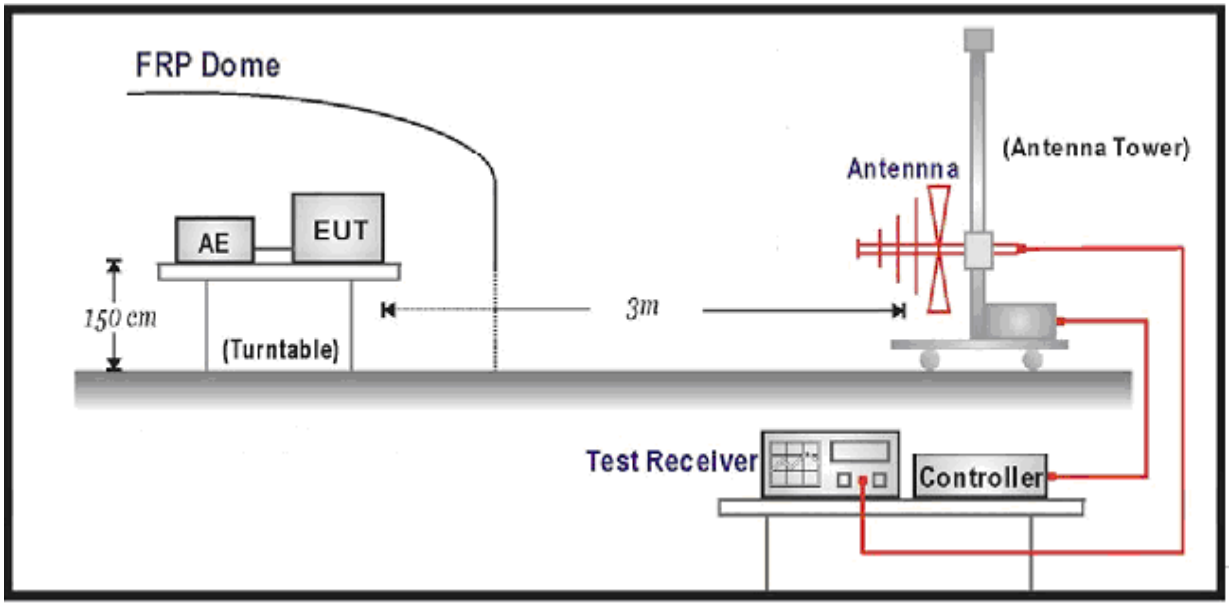
12. RECEIVER SPURIOUS EMISSIONS

12.1. Limit

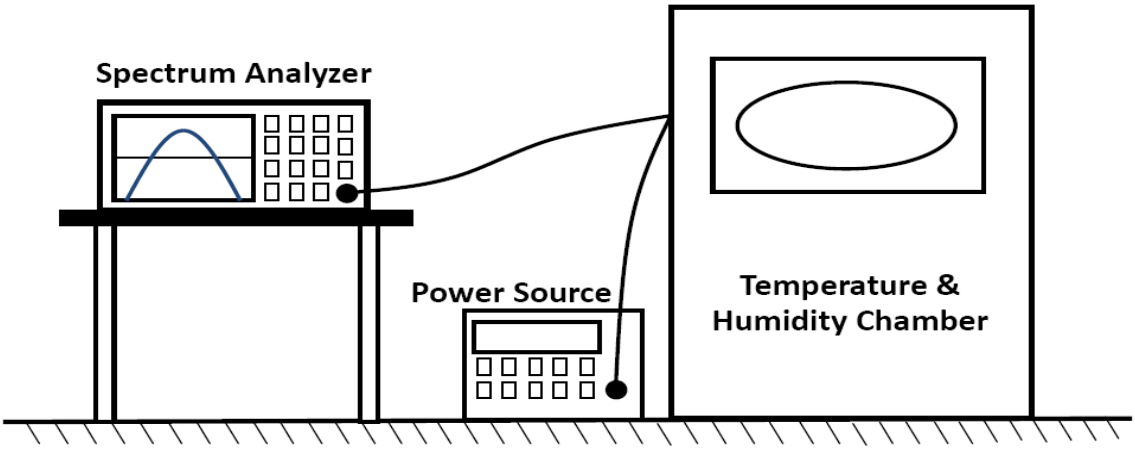
Spurious emissions limits for receivers		
Frequency Range	Maximum power E.R.P. (≤ 1GHz) E.I.R.P. (> 1GHz)	Measurement bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz
1 GHz to 12.75 GHz	-47 dBm	1 MHz

12.2. Test Setup

For Radiated Measurement



For Conducted Measurement



12.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2 (2019-07) Clause 5.4.11

Step 1:

The sensitivity of the spectrum analyzer should be such that the noise floor is at least 12 dB below the limits given in tables 2 or 5.

Step 2:

The emissions over the range 30 MHz to 1 000 MHz shall be identified.

Spectrum analyzer settings:

• Resolution bandwidth: 100 kHz

• Video bandwidth: 300 kHz

• Detector mode: Peak

• Trace Mode: Max Hold

• Sweep Points: ≥ 9 970

• Sweep time: Auto

Allow the trace to stabilize. Any emissions identified during the sweeps above and that fall within the 6 dB range below the applicable limit or above, shall be individually measured using the procedure in clause 5.3.11.2.1.2 and compared to the limits given in tables 2 or 5.

Step 3:

The emissions over the range 1 GHz to 12,75 GHz shall be identified.

Spectrum analyzer settings:

• Resolution bandwidth: 1 MHz

• Video bandwidth: 3 MHz

• Detector mode: Peak

• Trace Mode: Max Hold

• Sweep Points: ≥ 11 750

• Sweep time: Auto

Allow the trace to stabilize. Any emissions identified during the sweeps above that fall within the 6 dB range below the applicable limit or above, shall be individually measured using the procedure in clause 5.3.11.2.1.2 and compared to the limits given in tables 2 or 5. Frequency Hopping equipment may generate a block (or several blocks) of spurious emissions anywhere within the spurious domain. If this is the case, only the highest peak of each block of emissions shall be measured using the procedure in clause 5.3.11.2.1.2.

Step 4:

• In case of conducted measurements on smart antenna systems (equipment with multiple receive chains), the steps 2 and 3 need to be repeated for each of the active receive chains (Ach).The limits used to identify emissions during this pre-scan need to be reduced with 10 × log10 (Ach) (number of active receive chains).

12.4. Test Result

Product	:	YR-SPP
Test Item	:	Receiver spurious emissions(Radiated Measurement)
Test Mode	:	Mode 5: Receive by 802.11b
Test Engineer	:	Johnson Wang

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 01 (2412MHz)					
261.04	H	-68.78	-57.00	-11.78	PK
196.42	V	-67.31	-57.00	-10.31	PK
927.24	H	-68.08	-57.00	-11.08	PK
918.73	V	-67.04	-57.00	-10.04	PK
1879.60	H	-60.00	-47.00	-13.00	PK
1888.74	V	-59.89	-47.00	-12.89	PK
2391.03	H	-60.29	-47.00	-13.29	PK
2879.00	V	-60.70	-47.00	-13.70	PK
Channel 13 (2472MHz)					
160.20	H	-69.09	-57.00	-12.09	PK
172.31	V	-68.27	-57.00	-11.27	PK
837.06	H	-68.22	-57.00	-11.22	PK
867.77	V	-69.93	-57.00	-12.93	PK
1521.49	H	-58.21	-47.00	-11.21	PK
1462.44	V	-57.24	-47.00	-10.24	PK
2538.34	H	-58.72	-47.00	-11.72	PK
2627.25	V	-60.97	-47.00	-13.97	PK

Product	:	YR-SPP
Test Item	:	Receiver spurious emissions(Radiated Measurement)
Test Mode	:	Mode 6: Receive by 802.11g
Test Engineer	:	Johnson Wang

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 01 (2412MHz)					
152.62	H	-68.99	-57.00	-11.99	PK
142.02	V	-67.14	-57.00	-10.14	PK
915.08	H	-67.84	-57.00	-10.84	PK
981.89	V	-69.63	-57.00	-12.63	PK
1358.24	H	-58.37	-47.00	-11.37	PK
1871.47	V	-60.36	-47.00	-13.36	PK
2893.94	H	-59.51	-47.00	-12.51	PK
2552.87	V	-61.33	-47.00	-14.33	PK
Channel 13 (2472MHz)					
251.78	H	-68.20	-57.00	-11.20	PK
135.04	V	-66.19	-57.00	-9.19	PK
829.23	H	-69.58	-57.00	-12.58	PK
830.34	V	-69.27	-57.00	-12.27	PK
1532.01	H	-58.20	-47.00	-11.20	PK
1465.25	V	-59.25	-47.00	-12.25	PK
2503.23	H	-61.34	-47.00	-14.34	PK
2449.96	V	-62.00	-47.00	-15.00	PK

Product	:	YR-SPP
Test Item	:	Receiver spurious emissions(Radiated Measurement)
Test Mode	:	Mode 7: Receive by 802.11n(20MHz)
Test Engineer	:	Johnson Wang

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 01 (2412MHz)					
278.64	H	-69.02	-57.00	-12.02	PK
115.98	V	-68.39	-57.00	-11.39	PK
953.48	H	-69.38	-57.00	-12.38	PK
929.06	V	-70.05	-57.00	-13.05	PK
1785.02	H	-59.35	-47.00	-12.35	PK
1366.11	V	-58.11	-47.00	-11.11	PK
2440.31	H	-58.63	-47.00	-11.63	PK
2379.43	V	-59.90	-47.00	-12.90	PK
Channel 13 (2472MHz)					
275.49	H	-67.55	-57.00	-10.55	PK
182.22	V	-66.44	-57.00	-9.44	PK
924.52	H	-68.79	-57.00	-11.79	PK
940.23	V	-68.12	-57.00	-11.12	PK
1661.02	H	-59.25	-47.00	-12.25	PK
1495.86	V	-59.72	-47.00	-12.72	PK
2710.54	H	-61.37	-47.00	-14.37	PK
2569.56	V	-59.95	-47.00	-12.95	PK

Product	:	YR-SPP
Test Item	:	Receiver spurious emissions(Radiated Measurement)
Test Mode	:	Mode 8: Receive by 802.11n(40MHz)
Test Engineer	:	Johnson Wang

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 03 (2422MHz)					
229.09	H	-68.26	-57.00	-11.26	PK
265.71	V	-67.34	-57.00	-10.34	PK
987.00	H	-69.26	-57.00	-12.26	PK
931.60	V	-68.55	-57.00	-11.55	PK
1504.99	H	-59.74	-47.00	-12.74	PK
1310.72	V	-57.74	-47.00	-10.74	PK
2890.65	H	-60.12	-47.00	-13.12	PK
2697.25	V	-61.25	-47.00	-14.25	PK
Channel 11 (2462MHz)					
151.52	H	-67.31	-57.00	-10.31	PK
128.95	V	-68.48	-57.00	-11.48	PK
850.60	H	-67.54	-57.00	-10.54	PK
916.78	V	-67.80	-57.00	-10.80	PK
1362.37	H	-57.50	-47.00	-10.50	PK
1458.16	V	-58.61	-47.00	-11.61	PK
2774.72	H	-59.29	-47.00	-12.29	PK
2299.83	V	-61.23	-47.00	-14.23	PK

13. RECEIVER BLOCKING

13.1. Limit

While maintaining the minimum performance criteria as defined in clause 4.3.2.11.3, the blocking levels at specified frequency offsets shall be equal to or greater than the limits defined for the applicable receiver category provided in table 14, table 15 or table 16.

Table 14 contains the Receiver Blocking parameters for Receiver Category 1 equipment.

Table 14: Receiver Blocking parameters for Receiver Category 1 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 4)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 4)	Type of blocking signal
(-133 dBm + 10 × $\log_{10}$(OCBW)) or -68 dBm whichever is less (see note 2)	2 380 2 504	-34	CW
(-139 dBm + 10 × $\log_{10}$(OCBW)) or -74 dBm whichever is less (see note 3)	2 300 2 330 2 360 2 524 2 584 2 674		

NOTE 1: OCBW is in Hz.

NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 26 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 3: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 20 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 4: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.

Table 15 contains the Receiver Blocking parameters for Receiver Category 2 equipment.

Table 15: Receiver Blocking parameters receiver Category 2 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 3)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking signal
(-139 dBm + 10 × $\log_{10}$(OCBW) + 10 dB) or (-74 dBm + 10 dB) whichever is less (see note 2)	2 380 2 504 2 300 2 584	-34	CW
NOTE 1: OCBW is in Hz. NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 26 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal. NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.			

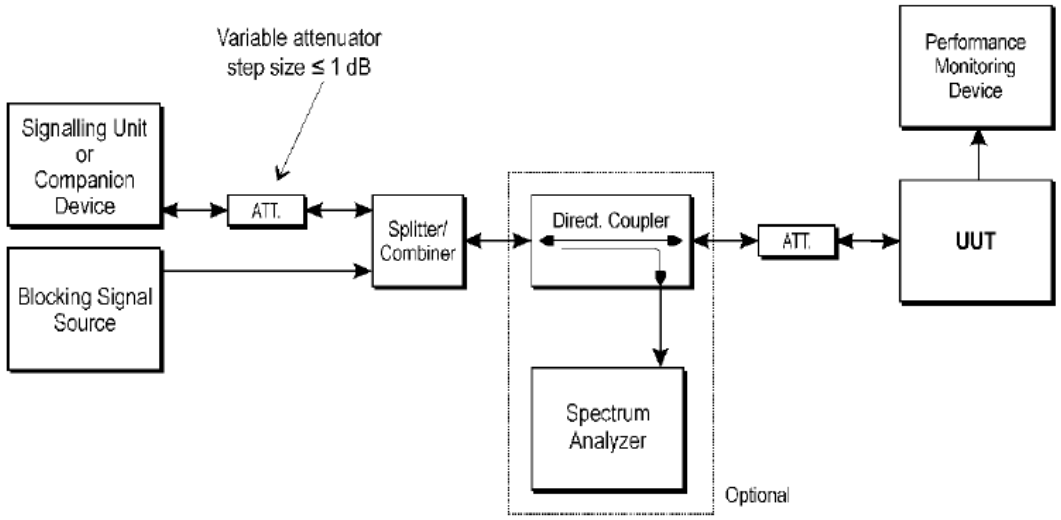
Table 16 contains the Receiver Blocking parameters for Receiver Category 3 equipment.

Table 16: Receiver Blocking parameters receiver Category 3 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 3)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking signal
(-139 dBm + 10 × $\log_{10}$(OCBW) + 20 dB) or (-74 dBm + 20 dB) whichever is less (see note 2)	2 380 2 504 2 300 2 584	-34	CW
NOTE 1: OCBW is in Hz. NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 30 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal. NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.			

13.2. Test Setup

Conducted measurements



13.3. Test Procedure

Step 1:

• For non-frequency hopping equipment, the UUT shall be set to the lowest operating channel.

Step 2:

• The blocking signal generator is set to the first frequency as defined in the appropriate table corresponding to the receiver category and type of equipment.

Step 3:

• With the blocking signal generator switched off, a communication link is established between the UUT and the associated companion device using the test setup shown in figure 6. 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 4.3.1.12.3 or clause 4.3.2.11.3 is still met. The resulting level for the wanted signal at the input of the UUT is Pmin.

• This signal level (Pmin) is increased by the value provided in the table corresponding to the receiver category and type of equipment.

Step 4:

• The blocking signal at the UUT is set to the level provided in the table corresponding to the receiver category and type of equipment. It shall be verified and recorded in the test report that the performance criteria as specified in clause 4.3.1.12.3 or clause 4.3.2.11.3 is met.

Step 5:

• Repeat step 4 for each remaining combination of frequency and level for the blocking signal as provided in the table corresponding to the receiver category and type of equipment.

Step 6:

• For non-frequency hopping equipment, repeat step 2 to step 5 with the UUT operating at the highest operating channel.

13.4. Test Result

Product	:	YR-SPP
Test Item	:	RECEIVER BLOCKING
Test Environment	:	23.2℃ 53.4%RH

Receiver Category	Test Channel	Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 2)	PER (%)	Limit (%)	Result
1	Lowest	-68	2380	-34	4.43	10	Pass
		-74	2300		6.35	10	Pass
			2330		8.64	10	Pass
			2360		2.28	10	Pass
	Highest	-68	2504		3.38	10	Pass
		-74	2524		7.56	10	Pass
			2584		2.45	10	Pass
			2674		7.33	10	Pass

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