RED-Radio Test Report

Client Name	:	**EcoFlow Inc.**
Client Address	:	**Plant A202, Founder Technology Industrial Park, Shiyan Sub-district, Bao'an District Shenzhen, Guangdong 518000 China**
Product Name	:	**Portable Power Station**
Report Date	:	**Oct. 14, 2022**

Shenzhen Anbotek Compliance Laboratory Limited

Contents

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TEST REPORT

Applicant	:	EcoFlow Inc.
Manufacturer	:	EcoFlow Inc.
Product Name	:	Portable Power Station
Model No.	:	EFR600
Trade Mark	:	,
Rating(s)	:	Please refer to page 8
Test Standard(s)	:	**ETSI EN 300 328 V2.2.2 (2019-07)**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the ETSI EN 300 328 V2.2.2 (2019-07) requirements. All measurements contained in this report were conducted with the test standard listed above.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt	Aug. 11, 2022
Date of Test	Aug. 11~22, 2022
Prepared By	Nian xiu Chen (Nianxiu Chen)
Approved & Authorized Signer	Kingkong Jin (Kingkong Jin)

Revision History

Report Version	Description	Issued Date
R00	Original Issue.	Oct. 14, 2022

1. General Information

1.1. Client Information

Applicant	:	EcoFlow Inc.
Address	:	Plant A202, Founder Technology Industrial Park, Shiyan Sub-district, Bao'an District Shenzhen, Guangdong 518000 China
Manufacturer	:	EcoFlow Inc.
Address	:	Plant A202, Founder Technology Industrial Park, Shiyan Sub-district, Bao'an District Shenzhen, Guangdong 518000 China

1.2. Description of Device (EUT)

Product Name	:	Portable Power Station
Model No.	:	EFR600
Trade Mark	:	, ECOFLOW
Test Power Supply	:	Voltage of EUT: DC 12.8V Output to RF Module: DC 3.3V
Test Sample No.	:	1-2-2(Engineering Sample)
Adapter	:	N/A
RF Specification		
Operation Mode	:	☒ BT BLE
Support Rate	:	☒ 1Mbps ☒ 2Mbps
Operation Frequency	:	2402~2480MHz
Number of Channel	:	40 Channels
Modulation Type	:	GFSK
Antenna Type	:	PCB Antenna
Antenna Gain(Peak)	:	3.96dBi (Provided by customer)
Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.		

1.3. Auxiliary Equipment Used During Test

Description	Rating(s)
CH340 USB TO TTL UART	Model: MCS-71 Pro Manufacturer: Mercury electronics technologies
Notebook	Manufacturer: ASUS Model: S4300F Input: 19V3.42A CMIIT ID:2018AJ2842

1.4. Description of Test Configuration

The system was configured for testing in engineering mode, which was provided by manufacturer.

For 2.4GHz BLE, 40 channels are provided to testing as below table:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
00	**2402**	09	2420	18	2438	27	2456	36	2474
01	2404	10	2422	**19**	**2440**	28	2458	37	2476
02	2406	11	2424	20	2442	29	2460	38	2478
03	2408	12	2426	21	2444	30	2462	**39**	**2480**
04	2410	13	2428	22	2446	31	2464		
05	2412	14	2430	23	2448	32	2466		
06	2414	15	2432	24	2450	33	2468		
07	2416	16	2434	25	2452	34	2470		
08	2418	17	2436	26	2454	35	2472		

EUT was tested with channel 0, 19 and 39.

1.5. Test Conditions

Temperature	Normal Temperature:	15°C - 35°C
	High Temperature:	45°C
	Low Temperature:	-10°C
Voltage	Normal Voltage	Voltage of EUT: DC 12.8V Output to RF Module: DC 3.3V
	High Voltage	/
	Low Voltage	/
Other	Relative Humidity	20% - 75%
	Air Pressure	101 kPa
Note: The extremes of the operating temperature was declared by manufacture.		

Rating(s):

Portable Power Station/station électronique portable	
Model/Modèle:	EFR600
Capacity/Capacité:	256Wh (20Ah 12.8V⎓)
Discharge Temperature/Température d'utilisation:	-10 to 45°C (14 to 113°F)
Charge Temperature/Température de recharge:	0 to 45°C (32 to 113°F)
AC Input/entrée:	200-240V~ 50Hz/60Hz 8A Max
Solar/Solaire/DC Input/entrée:	11-30V⎓ 8A 110W Max
Total Output/sortie totale:	484W
DC Output/sortie:	12.6V⎓ 8A 100W Max
AC Output/sortie(x1):	230V~1.3A (total) 50Hz/60Hz 300W
AC Output/sortie/(Bypass/Dérivation)(x1):	200-240V~ 600W (total) 50Hz/60Hz
USB-A Output/sortie(x2):	5V⎓ 2.4A 12W Max per port
USB-C Input/Output/entrée/sortie(x1):	5/9/12/15/20V⎓ 3A 60W Max

1.6. Measurement Uncertainty

For the test methods, according to ETSI EN 300 328 standard, the measurement uncertainty figures shall be calculated in accordance with ETR 100 028-1 [4] and shall correspond to an expansion factor (coverage factor) k = 1,96 or k = 2 (which provide confidence levels of respectively 95 % and 95,45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Maximum measurement uncertainty

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 %

1.7. Description of Test Facility

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

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, 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 No. 184111.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.
1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518102

1.8. Test Standard Description

ETSI EN 300 328 V2.2.2 (2019-07)
Wideband transmission systems;
Data transmission equipment operating in the 2,4 GHz band; Harmonised Standard for access to radio spectrum

1.9. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Three Phase V-type Artificial Power Network	CYBERTEK	EM5040DT	E215040DT001	Jul 05, 2022	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Oct. 22, 2021	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Oct. 22, 2021	1 Year
4.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Oct. 22, 2021	1 Year
5.	MAX Spectrum Analysis	Agilent	N9020A	MY51170037	Oct. 22, 2021	1 Year
6.	Preamplifier	SKET Electronic	BK1G18G30D	KD17503	Oct. 22, 2021	1 Year
7.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Oct. 22, 2021	2 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Oct. 22, 2021	2 Year
9.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Oct. 22, 2021	2 Year
10.	Horn Antenna	A-INFO	LB-180400-KF	J211060628	Oct. 22, 2021	2 Year
11.	Pre-amplifier	SONOMA	310N	186860	Oct. 22, 2021	1 Year
12.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
13.	RF Test Control System	YIHENG	YH3000	2017430	Oct. 22, 2021	1 Year
14.	Power Sensor	DAER	RPR3006W	15I00041SN045	Oct. 22, 2021	1 Year
15.	Power Sensor	DAER	RPR3006W	15I00041SN046	Oct. 22, 2021	1 Year
16.	MXA Spectrum Analysis	KEYSIGHT	N9020A	MY53280032	Oct. 22, 2021	1 Year
17.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Oct. 22, 2021	1 Year
18.	Signal Generator	Agilent	E4421B	MY41000743	Oct. 22, 2021	1 Year
19.	DC Power Supply	IVYTECH	IV3605	1804D360510	Oct. 22, 2021	1 Year
20.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Oct. 22, 2021	1 Year

2. Summary of Test Results

Transmitter Items		
Test Items	Clause No.	Results
RF Output Power	ETSI EN 300 328 V2.2.2 §4.3.2.2	Complies
Power Spectral Density	ETSI EN 300 328 V2.2.2 §4.3.2.3	Complies
Duty Cycle, TX-Sequence, TX-gap	ETSI EN 300 328 V2.2.2 §4.3.2.4	N/A Note (2)(3)
Medium Utilization (MU) factor	ETSI EN 300 328 V2.2.2 §4.3.2.5	N/A Note (2)(3)
Adaptivity	ETSI EN 300 328 V2.2.2 §4.3.2.6	N/A
Occupied Channel Bandwidth	ETSI EN 300 328 V2.2.2 §4.3.2.7	Complies
Transmitter Unwanted Emissions in the Out-Of-Band Domain	ETSI EN 300 328 V2.2.2 §4.3.2.8	Complies
Transmitter Unwanted Emissions in the Spurious Domain	ETSI EN 300 328 V2.2.2 §4.3.2.9	Complies
Receiver Items		
Test Items	Clause No.	Results
Receiver spurious emissions	ETSI EN 300 328 V2.2.2 §4.3.2.10	Complies
Receiver Blocking	ETSI EN 300 328 V2.2.2 §4.3.2.11	Complies
Geo-location capability	ETSI EN 300 328 V2.2.2 §4.3.2.12	N/A

Note:

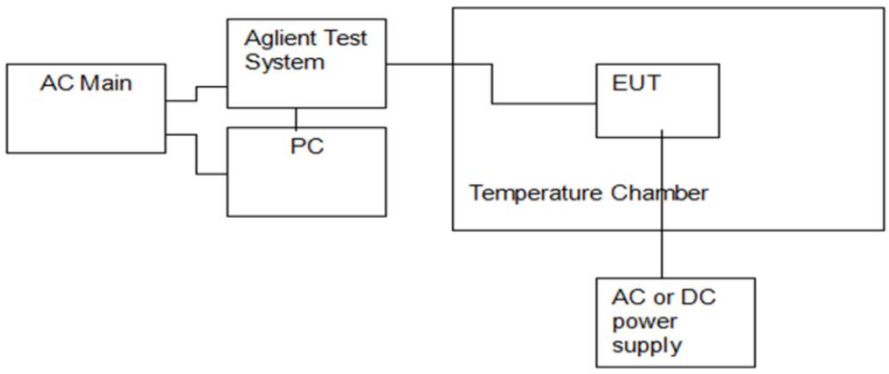
1. “N/A”: indicates test is not applicable in this Test Report.
2. Note(2) These requirements apply to non-adaptive equipment or to adaptive equipment when operating in a non-adaptive mode. The equipment is non-FHSS equipment.
3. Note(3) This requirement applies to non-adaptive equipment or to adaptive equipment when operating in a non-adaptive mode.
4. This requirement does not apply to adaptive equipment unless operating in non-adaptive mode.

3. RF Output Power

3.1. Test Limit

Condition	Limit
☐ Non-adaptive frequency hopping systems	Equal to or less than the value declared by the manufacturer. This declared value shall be equal to or less than 20 dBm.
☒ Adaptive frequency hopping systems	20dBm

3.2. Test Setup



3.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2, clause 5.4.2 for the test conditions and the measurement method.

1. Run a test program to control EUT transmitting at specific channel
2. Connect the power sensor to the transmit port
3. Power Meter was setting as below:
   Sample speed: 1 MS/s
   Number of bursts: at least 10bursts
   Detector: RMS
4. A power meter was used to read the response of the power sensor
5. Define Start time and Stop time of a burst by 30dB below the highest value of the stores samples.
6. Find the highest burst value
7. Record the power level
8. EIRP = antenna gain + power level of step 7.

3.4. Test Data

Pass

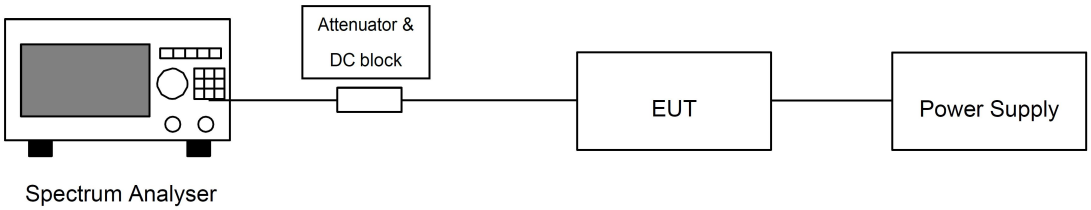
Please refer to Appendix A of the Appendix Test Data.

4. Power Spectral Density

4.1. Test Limit

Condition	Frequency Band	Limit (e.i.r.p.)
Under normal conditions	2400 ~ 2483.5 MHz	10dBm / 1MHz

4.2. Test Setup



4.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2, clause 5.4.3 for the test conditions and the measurement method.

Step 1:

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

Resolution BW:	10 kHz
Video BW:	30 kHz
Sweep points:	>8350
Detector:	RMS
Trace:	Max hold
Sweep time:	Auto

For non-continuous signals, wait for the trace to stabilize. Save the data (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.

4.4. Test Data

Pass

Please refer to Appendix B of the Appendix Test Data.

5. Adaptivity

5.1. Test Limit

See clause 5.1 for the test conditions. These measurements shall only be performed at normal test conditions.

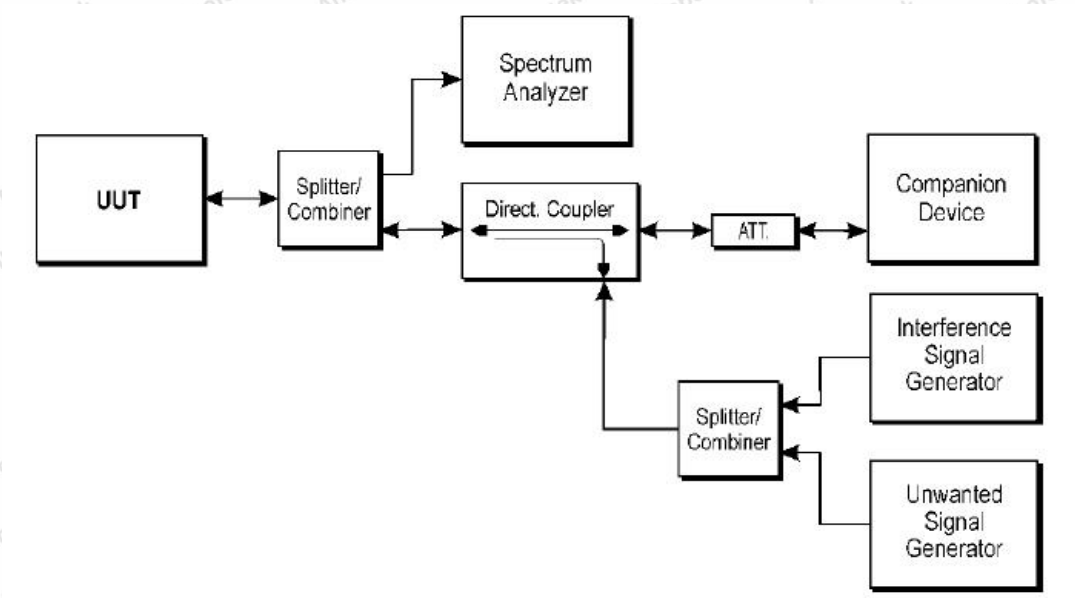
When supported by the operating frequency range of the equipment, this test shall be performed on two operating (hopping) frequencies randomly selected from the operating frequencies used by the equipment. The first (lower) frequency shall be randomly selected within the range 2400 MHz to 2442 MHz while the second (higher) frequency shall be randomly selected within the range 2442 MHz to 2483,5 MHz. The equipment shall be in a normal operating (hopping) mode.

For equipment which can operate in an adaptive and a non-adaptive mode, it shall be verified that prior to the test, the equipment is operating in the adaptive mode.

The equipment shall be configured in a mode that results in the longest Channel Occupancy Time.

☐ Non-LBT based Detect and Avoid: 1 The frequency shall remain unavailable for a minimum time equal to 1 second after which the channel maybe considered again as an 'available' channel; 2 COT ≤ 40 ms; 3 Idle Period = 5% of COT; 4 Detection threshold level = -70dBm/MHz +10*log(100mW/Pout)(Pout in mW E.I.R.P)
☐ LBT based Detect and Avoid (Frame Based Equipment): 1 Minimum Clear Channel Assessment (CCA) time ≤18 us; 2 CCA observation time declared by the supplier; 3 COT = 1~10 ms; 4 Idle Period ≥ 5% of COT; 5 Detection threshold level = -70dBm/MHz +10*log(100mW/Pout)(Pout in mW E.I.R.P)
☐ LBT based Detect and Avoid (Load Based Equipment): 1 Minimum Clear Channel Assessment (CCA) time ≥18 us; 2 CCA declared by the manufacturer; 3 Detection threshold level =-70dBm/MHz +10*log(100mW/Pout)(Pout in mW E.I.R.P)
☐ Short Control Signalling Transmissions: Short Control Signalling Transmissions shall have a maximum duty cycle of 10% within any observation period of 50ms.

5.2. Test Setup



5.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2 Clause 5.4.6

5.4. Test Data

Not applicable

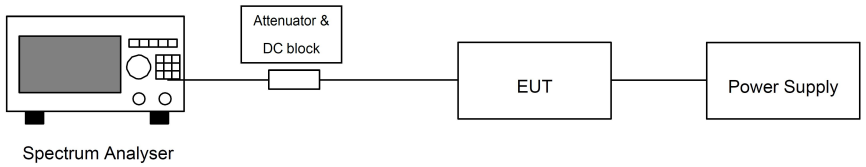
Note : The maximum output power of EUT less than 10dBm, so not applicable.

6. Occupied Channel Bandwidth

6.1. Test Limit

Condition		Limit
All types of equipment		Shall fall completely within the band 2400 to 2483.5 MHz.
Additional requirement	For non-adaptive using wide band modulations other than FHSS system and e.i.r.p >10dBm.	Less than 20MHz
	For non-adaptive Frequency Hopping system and e.i.r.p >10dBm.	Less than 5MHz

6.2. Test Setup



6.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2, clause 5.4.7 for the test conditions and the measurement method.

The setting of the Spectrum Analyzer

Center Frequency:	The centre frequency of the channel under test
Frequency Span:	2 × Nominal Channel Bandwidth
Detector:	RMS
RBW:	~ 1 % of the span without going below 1 %
VBW:	3 × RBW
Trace Mode:	Max hold
Sweep time:	1s

6.4. Test Data

Pass

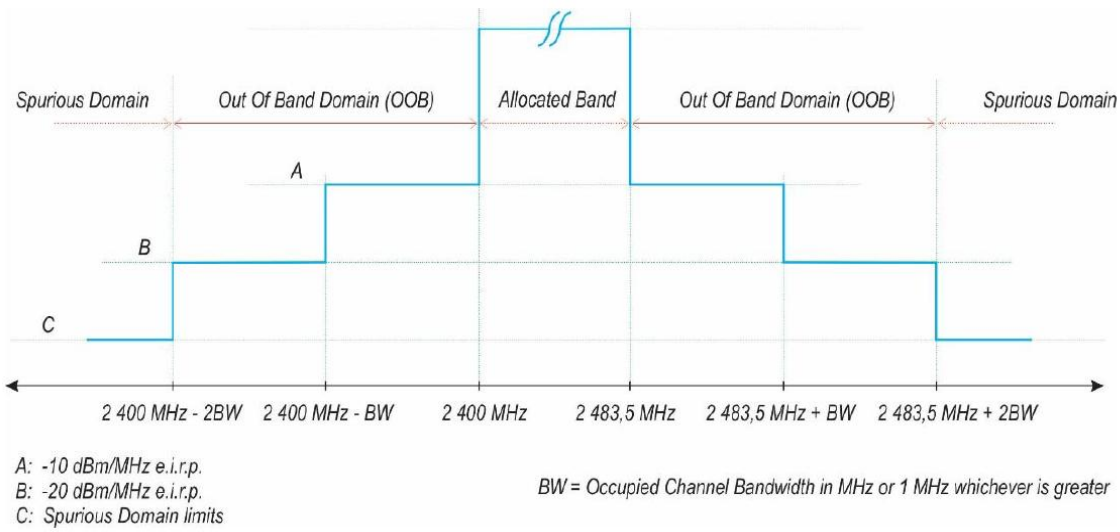
Please refer to Appendix C of the Appendix Test Data.

7. Transmitter Unwanted Emissions in the out-of-band Domain

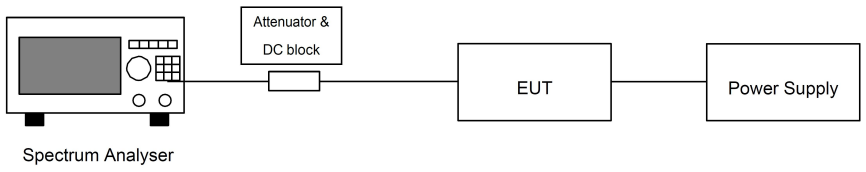
7.1. Test Limit

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 as below.

Note: Within the 2400MHz to 2483.5MHz band, the Out-of band emissions are fulfilled by compliance with the Occupied Channel Bandwidth requirement in clause 4.3.2.7.



7.2. Test Setup



7.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2, clause 5.4.8 for the test conditions and the measurement method.

Step 1:

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

- Measurement Mode: Time Domain Power
- Centre Frequency: 2 484 MHz
- Span: Zero Span
- Resolution BW: 1 MHz
- Filter mode: Channel filter
- Video BW: 3 MHz
- Detector Mode: RMS
- Trace Mode: Max Hold

- Sweep Mode: Single Sweep
- Sweep Points: Sweep time [µs] / (1 µs) with a maximum of 30 000
- Trigger Mode: Video
- Sweep Time: > 120 % of the duration of the longest burst detected during the measurement of the RF Output Power

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

• The measurement shall be performed and repeated while the trigger level is increased until no triggering takes place.

• For FHSS 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 + 2 BW):

• Change the centre frequency of the analyser to 2 484 MHz + BW and perform the measurement for the first 1 MHz segment within range 2 483,5 MHz + BW to 2 483,5 MHz + 2 BW. Increase the centre frequency in 1 MHz steps and repeat the measurements to cover this whole range. The centre frequency of the last 1 MHz segment shall be set to 2 483,5 MHz + 2 BW - 0,5 MHz (which means this may partly overlap with the previous 1 MHz segment).

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

• Change the centre frequency of the analyser to 2 399,5 MHz and perform the measurement for the first 1 MHz segment within range 2 400 MHz - BW to 2 400 MHz Reduce the centre frequency in 1 MHz steps and repeat the measurements to cover this whole range. The centre frequency of the last 1 MHz segment shall be set to 2 400 MHz - BW + 0,5 MHz (which means this may partly overlap with the previous 1 MHz segment).

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

• Change the centre frequency of the analyser to 2 399,5 MHz - BW and perform the measurement for the first 1 MHz segment within range 2 400 MHz - 2 BW 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 - 2 BW + 0,5 MHz (which means this may partly overlap with the previous 1 MHz segment).

7.4. Test Data

Pass

Please refer to Appendix D of the Appendix Test Data.

8. Transmitter Unwanted Emissions in the Spurious Domain

8.1. Test Limit

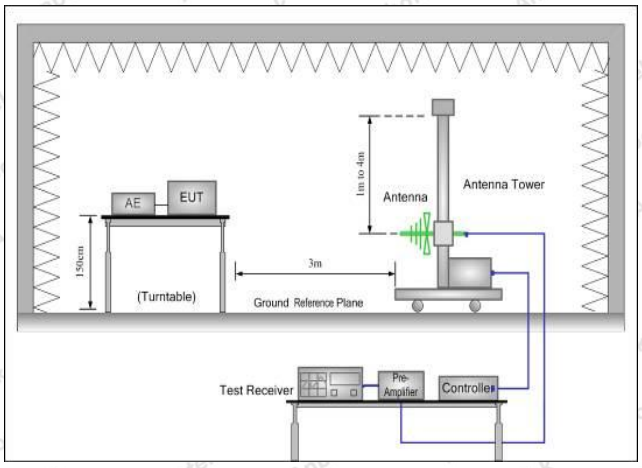
The transmitter unwanted emissions in the spurious domain shall not exceed the values given in table.

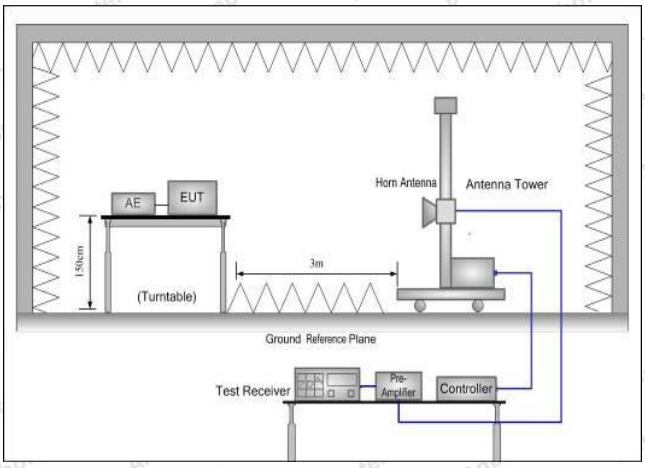
Frequency Range	Maximum power E.R.P. (≤ 1GHz) E.I.R.P. (> 1GHz)	Bandwidth
30 MHz to 47 MHz	-36dBm	100kHz
47 MHz to 74 MHz	-54dBm	100kHz
74 MHz to 87,5 MHz	-36dBm	100kHz
87,5 MHz to 118 MHz	-54dBm	100kHz
118 MHz to 174 MHz	-36dBm	100kHz
174 MHz to 230 MHz	-54dBm	100kHz
230 MHz to 470 MHz	-36dBm	100kHz
470 MHz to 694 MHz	-54dBm	100kHz
694 MHz to 1 GHz	-36dBm	100kHz
1 GHz to 12,75 GHz	-30dBm	1MHz

8.2. Test Setup

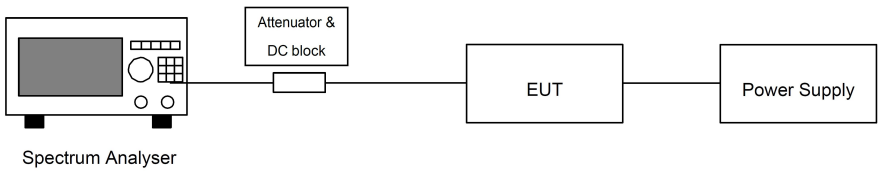
For Radiated Measurement:

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





For Conducted Measurement:



8.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2, clause 5.4.9 for the test conditions and the measurement method.

Step 1:

The sensitivity of the measurement set-up should be such that the noise floor is at least 12 dB below the limits given in table 4 or table 12.

Step 2:

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

Spectrum analyser settings:

- Resolution bandwidth: 100 kHz
- Video bandwidth: 300 kHz
- Filter type: 3 dB (Gaussian)
- Detector mode: Peak
- Trace Mode: Max Hold
- Sweep Points: ≥ 19 400; for spectrum analysers not supporting this high number of sweep points, the frequency band may 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, on any channel.

  For FHSS equipment operating in a normal operating (hopping not disabled) mode, the sweep time shall be further increased to capture multiple transmissions on any of the hopping frequencies.

  The above sweep time setting may result in long measuring times in case of FHSS equipment. To avoid such long measuring times, an FFT analyser may be used.

Allow the trace to stabilize. Any emissions identified during the sweeps above and that fall within the 6 dB range below the applicable limit or above, shall be individually measured using the procedure in clause 5.4.9.2.1.3 and compared to the limits given in table 4 or table 12.

Step 3:

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

Spectrum analyser settings:

- Resolution bandwidth: 1 MHz
- Video bandwidth: 3 MHz
- Filter type: 3 dB (Gaussian)
- Detector mode: Peak
- Trace Mode: Max Hold
- Sweep Points: ≥ 23 500; for spectrum analysers not supporting this high number of sweep points, the frequency band may 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.

8.4. Test Data

Radiated Measurement:

Worst case: BLE_1M:

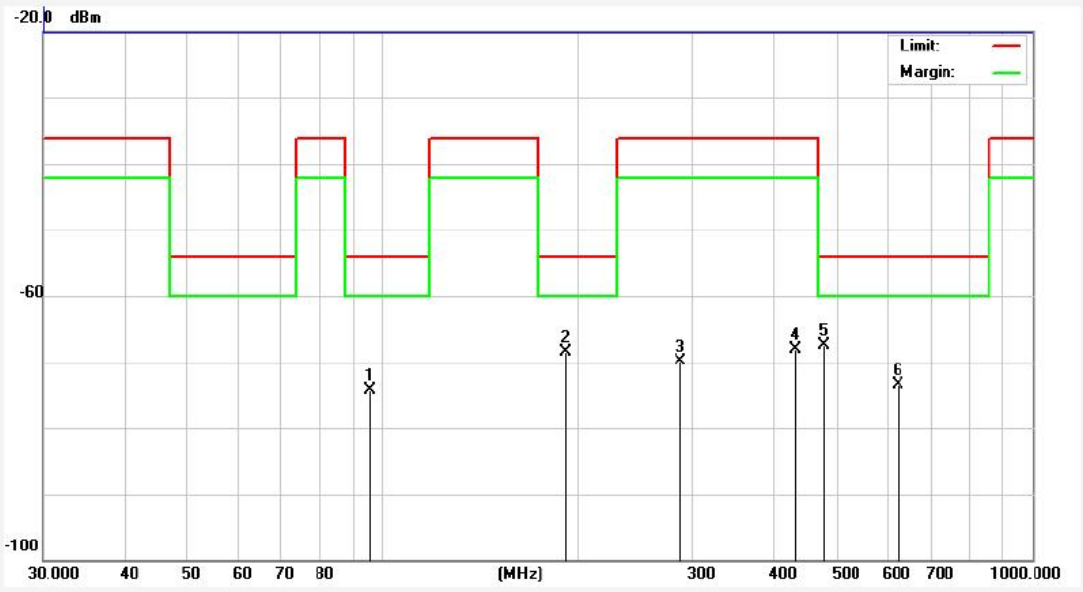
Test Results(30MHz-1000MHz)

Frequency (MHz) 2402

Power Source: DC 3.3V

Polarization: Horizontal

Temp.(℃)/Hum.(%RH): 24℃/56%RH



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	95.7622	-66.83	-7.49	-74.32	-54.00	-20.32	peak			
2	191.7450	-59.72	-8.72	-68.44	-54.00	-14.44	peak			
3	287.9904	-63.27	-6.67	-69.94	-36.00	-33.94	peak			
4	431.0316	-63.44	-4.64	-68.08	-36.00	-32.08	peak			
5	478.8455	-63.81	-3.77	-67.58	-54.00	-13.58	peak			
6	622.8899	-73.51	0.04	-73.47	-54.00	-19.47	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

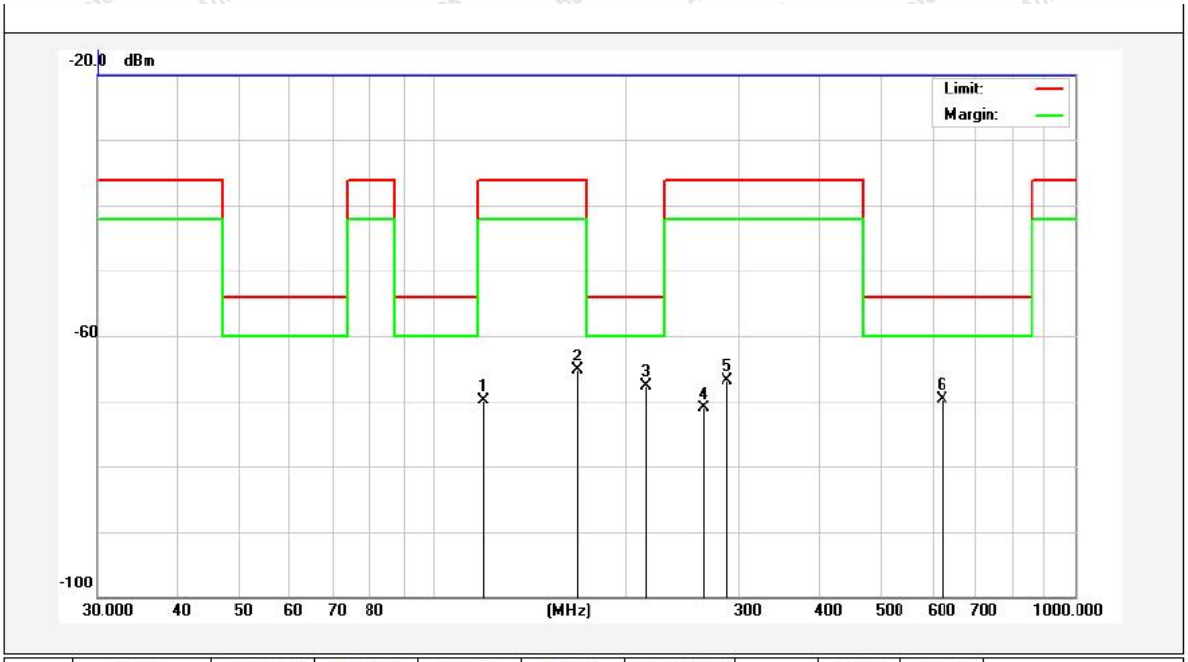
Test Results(30MHz-1000MHz)

Frequency (MHz) 2402

Power Source: DC 3.3V

Polarization: Vertical

Temp.(℃)/Hum.(%RH): 24℃/56%RH



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	119.8555	-55.74	-14.13	-69.87	-36.00	-33.87	peak			
2	167.8240	-52.34	-12.86	-65.20	-36.00	-29.20	peak			
3	215.2675	-56.91	-10.83	-67.74	-54.00	-13.74	peak			
4	263.8190	-61.14	-9.89	-71.03	-36.00	-35.03	peak			
5	287.9904	-58.67	-8.20	-66.87	-36.00	-30.87	peak			
6	622.8899	-69.71	0.04	-69.67	-54.00	-15.67	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

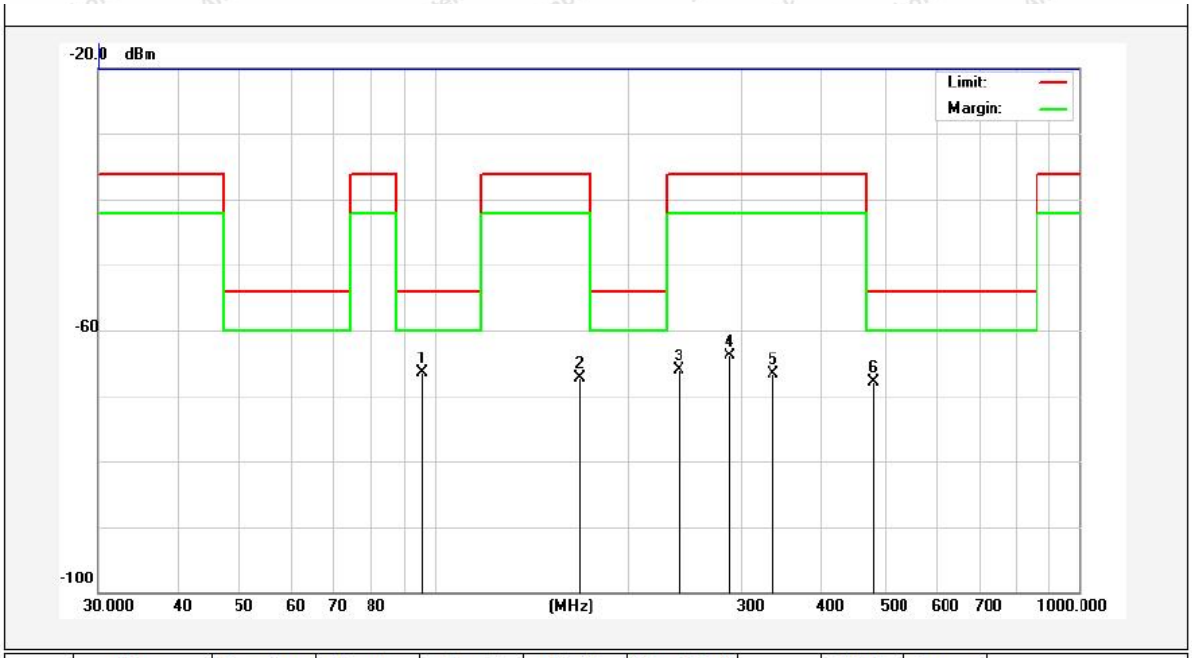
Test Results(30MHz-1000MHz)

Frequency (MHz) 2480

Power Source: DC 3.3V

Polarization: Horizontal

Temp.(℃)/Hum.(%RH): 24℃/56%RH



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	95.7622	-54.55	-12.02	-66.57	-54.00	-12.57	peak			
2	167.8240	-54.45	-12.86	-67.31	-36.00	-31.31	peak			
3	239.9874	-55.34	-10.84	-66.18	-36.00	-30.18	peak			
4	287.9904	-55.76	-8.20	-63.96	-36.00	-27.96	peak			
5	336.0350	-60.08	-6.63	-66.71	-36.00	-30.71	peak			
6	480.5276	-62.46	-5.37	-67.83	-54.00	-13.83	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

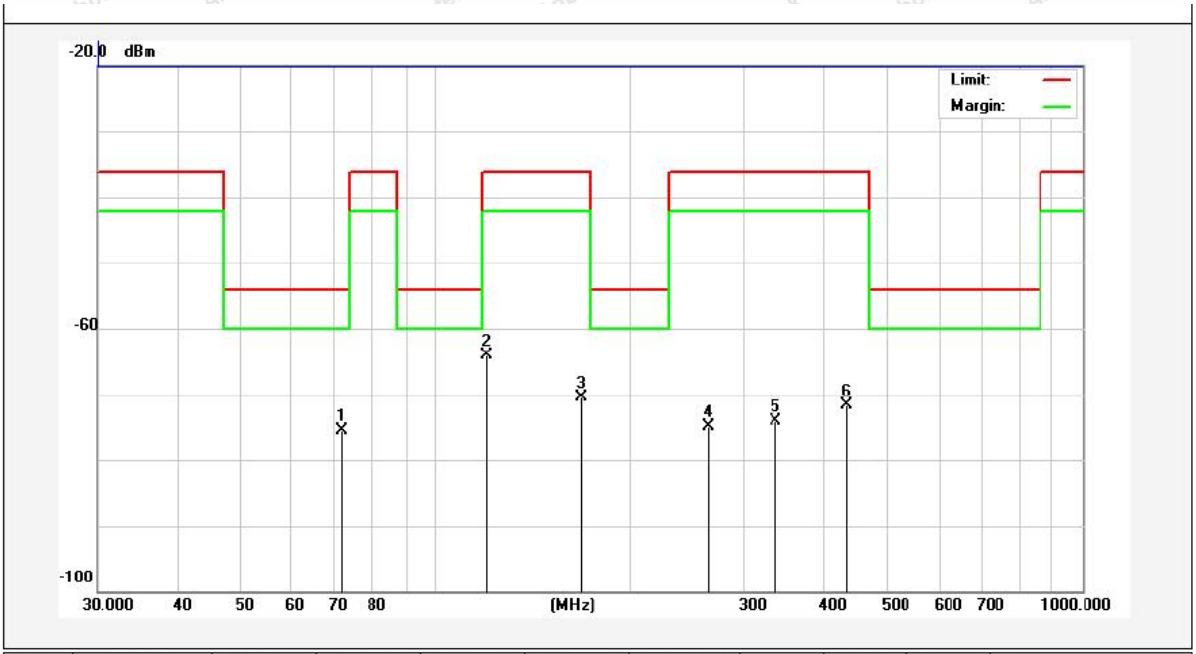
Test Results(30MHz-1000MHz)

Frequency (MHz) 2480

Power Source: DC 3.3V

Polarization: Vertical

Temp.(℃)/Hum.(%RH): 24℃/56%RH



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	71.8319	-63.84	-11.69	-75.53	-54.00	-21.53	peak			
2	119.8555	-53.96	-10.09	-64.05	-36.00	-28.05	peak			
3	167.8240	-60.10	-10.41	-70.51	-36.00	-34.51	peak			
4	263.8190	-67.88	-7.06	-74.94	-36.00	-38.94	peak			
5	336.0350	-68.44	-5.66	-74.10	-36.00	-38.10	peak			
6	432.5457	-67.02	-4.63	-71.65	-36.00	-35.65	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

Test Results(1GHz-12.75GHz)

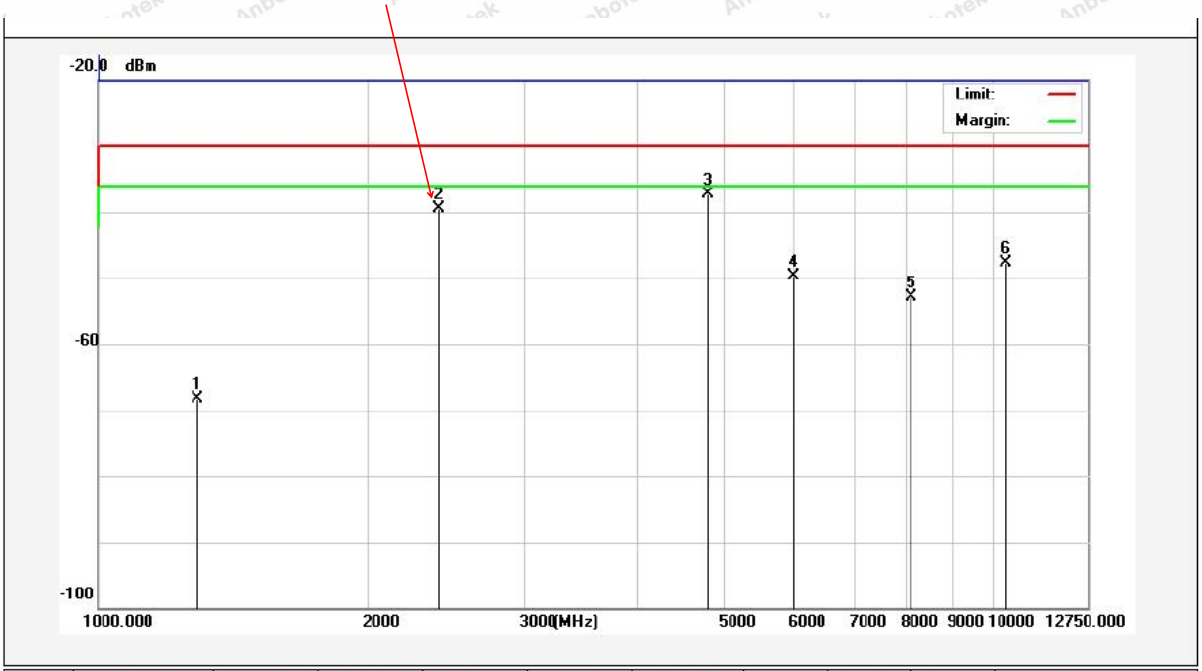
Frequency (MHz) 2402

Power Source: DC 3.3V

Polarization: Horizontal

Temp.(℃)/Hum.(%RH): 24℃/56%RH

Fundamental



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	1296.468	-49.76	-18.51	-68.27	-30.00	-38.27	peak			
2	2400.466	-21.65	-17.80	-39.45	-30.00	-9.45	peak			
3	4809.498	-29.42	-7.80	-37.22	-30.00	-7.22	peak			
4	6001.767	-46.71	-3.00	-49.71	-30.00	-19.71	peak			
5	8125.215	-55.29	2.36	-52.93	-30.00	-22.93	peak			
6	10348.046	-55.27	7.59	-47.68	-30.00	-17.68	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

Test Results(1GHz-12.75GHz)

Frequency (MHz) 2402

Power Source: DC 3.3V

Polarization: Vertical

Temp.(℃)/Hum.(%RH): 24℃/56%RH

Fundamental

No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	1518.111	-48.63	-18.90	-67.53	-30.00	-37.53	peak			
2	2400.466	-22.35	-17.80	-40.15	-30.00	-10.15	peak			
3	3200.502	-50.11	-13.41	-63.52	-30.00	-33.52	peak			
4	4159.927	-50.89	-9.80	-60.69	-30.00	-30.69	peak			
5	4809.498	-32.29	-7.80	-40.09	-30.00	-10.09	peak			
6	6799.065	-55.03	-1.07	-56.10	-30.00	-26.10	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

Test Results(1GHz-12.75GHz)

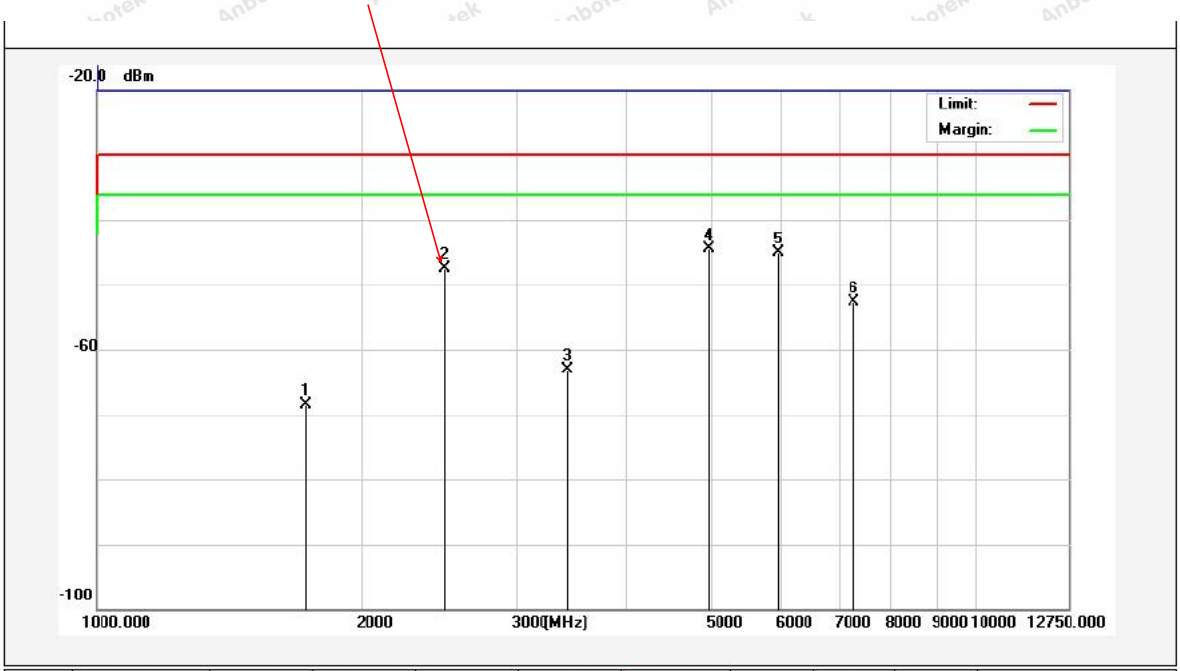
Frequency (MHz) 2480

Power Source: DC 3.3V

Polarization: Horizontal

Temp.(℃)/Hum.(%RH): 24℃/56%RH

Fundamental



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	1732.966	-49.23	-19.21	-68.44	-30.00	-38.44	peak			
2	2481.231	-29.95	-17.64	-47.59	-30.00	-17.59	peak			
3	3428.206	-50.05	-12.99	-63.04	-30.00	-33.04	peak			
4	4958.678	-37.27	-7.21	-44.48	-30.00	-14.48	peak			
5	5986.509	-42.13	-3.06	-45.19	-30.00	-15.19	peak			
6	7282.792	-53.85	1.22	-52.63	-30.00	-22.63	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

Test Results(1GHz-12.75GHz)

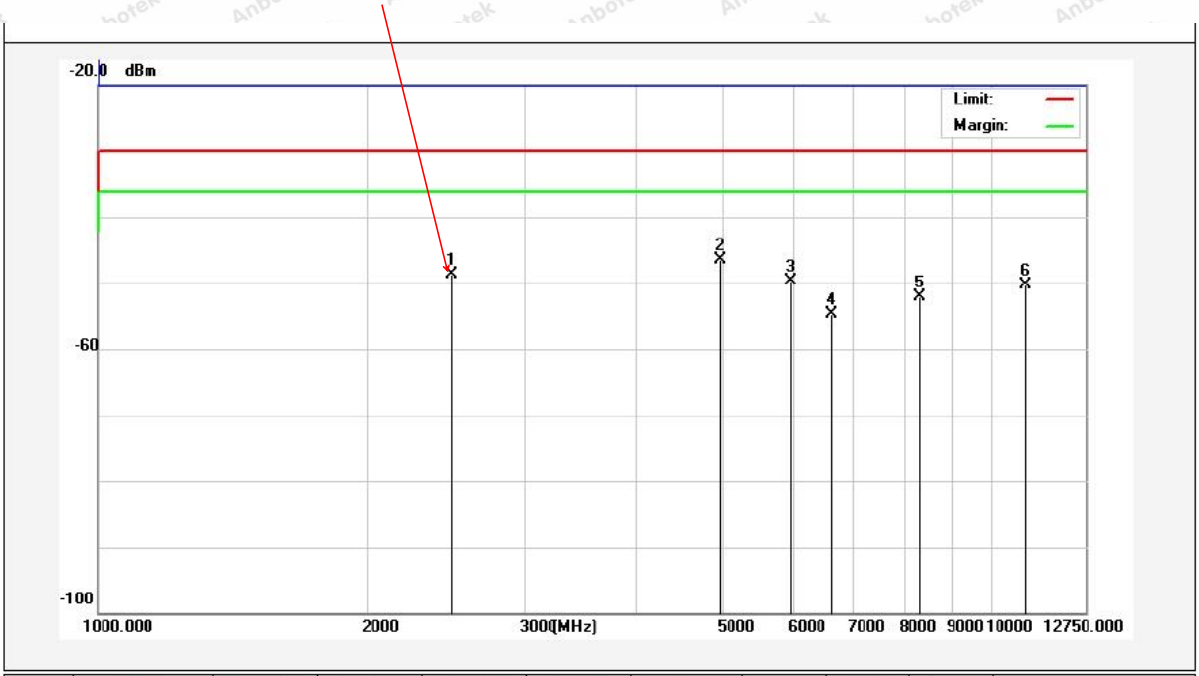
Frequency (MHz) 2480

Power Source: DC 3.3V

Polarization: Vertical

Temp.(℃)/Hum.(%RH): 24℃/56%RH

Fundamental



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2481.231	-31.15	-17.64	-48.79	-30.00	-18.79	peak			
2	4958.678	-39.37	-7.21	-46.58	-30.00	-16.58	peak			
3	5986.509	-46.64	-3.06	-49.70	-30.00	-19.70	peak			
4	6645.070	-53.09	-1.67	-54.76	-30.00	-24.76	peak			
5	8334.700	-53.84	1.83	-52.01	-30.00	-22.01	peak			
6	10888.513	-56.91	6.64	-50.27	-30.00	-20.27	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

Conducted Measurement:

Please refer to Appendix E of the Appendix Test Data.

9. Receiver Spurious Emissions

9.1. Test Limit

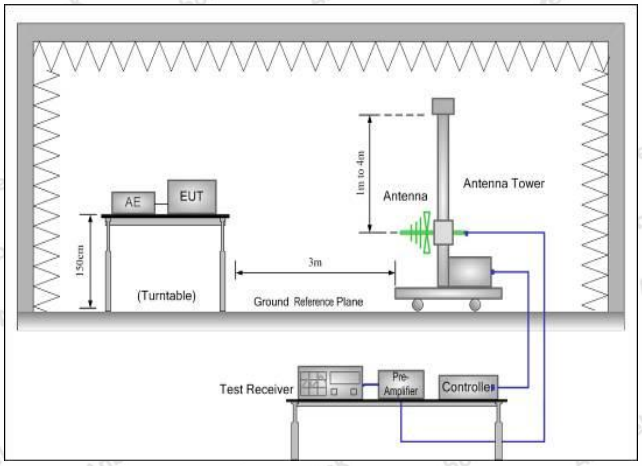
The spurious emissions of the receiver shall not exceed the values given in table.

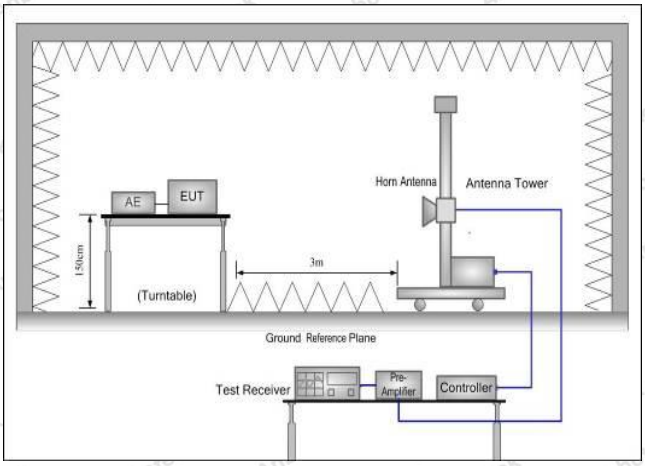
Frequency Range	Maximum power E.R.P. (≤ 1GHz) E.I.R.P. (> 1GHz)	Bandwidth
30MHz ~ 1GHz	-57dBm	100 kHz
1GHz ~ 12.75GHz	-47dBm	1 MHz

9.2. Test Setup

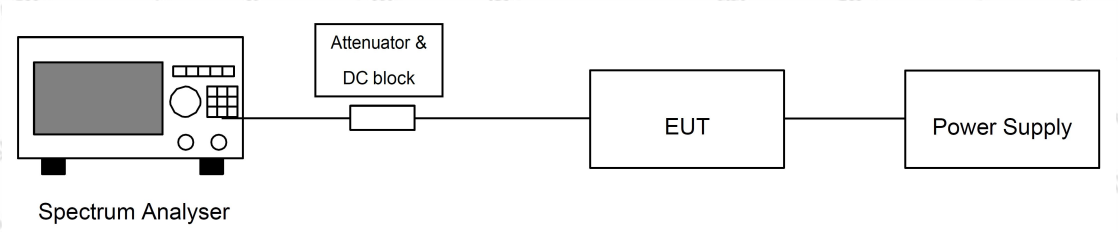
For Radiated Measurement:

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





For Conducted Measurement:



9.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2, clause 5.4.10 for the test conditions and the measurement method.

Step 1:

The sensitivity of the spectrum analyser should be such that the noise floor is at least 12 dB below the limits given in table 5 or table 13.

Step 2:

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

Spectrum analyser settings:

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

Wait for 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 5.4.10.2.1.3 and compared to the limits given in table 5 or table 13.

Step 3:

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

Spectrum analyser settings:

- Resolution bandwidth: 1 MHz
- Video bandwidth: 3 MHz
- Filter type: 3 dB (Gaussian)
- Detector mode: Peak
- Trace Mode: Max Hold
- Sweep Points: ≥ 23 500; for spectrum analysers not supporting this high number of sweep points, the frequency band may be segmented
- Sweep time: Auto

Wait for 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 5.4.10.2.1.3 and compared to the limits given in table 5 or table 13.

FHSS 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 5.4.10.2.1.3.

9.4. Test Data

Radiated Measurement:

Worst case: BLE_1M:

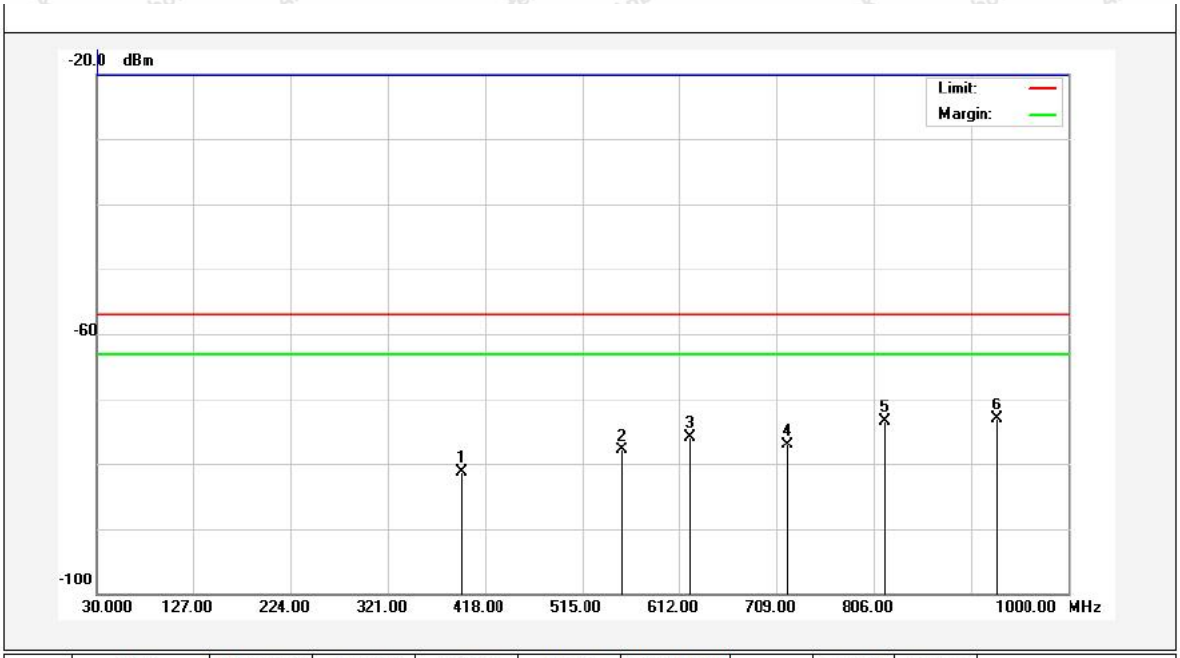
Test Results(30MHz-1000MHz)

Frequency (MHz) 2402

Power Source: DC 3.3V

Polarization: Horizontal

Temp.(℃)/Hum.(%RH): 25.7℃/49%RH



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	395.6899	-79.52	-1.84	-81.36	-57.00	-24.36	peak			
2	553.7998	-80.07	2.20	-77.87	-57.00	-20.87	peak			
3	622.6698	-79.74	3.86	-75.88	-57.00	-18.88	peak			
4	719.6698	-80.50	3.44	-77.06	-57.00	-20.06	peak			
5	816.6698	-79.73	6.19	-73.54	-57.00	-16.54	peak			
6	929.1900	-81.24	8.13	-73.11	-57.00	-16.11	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

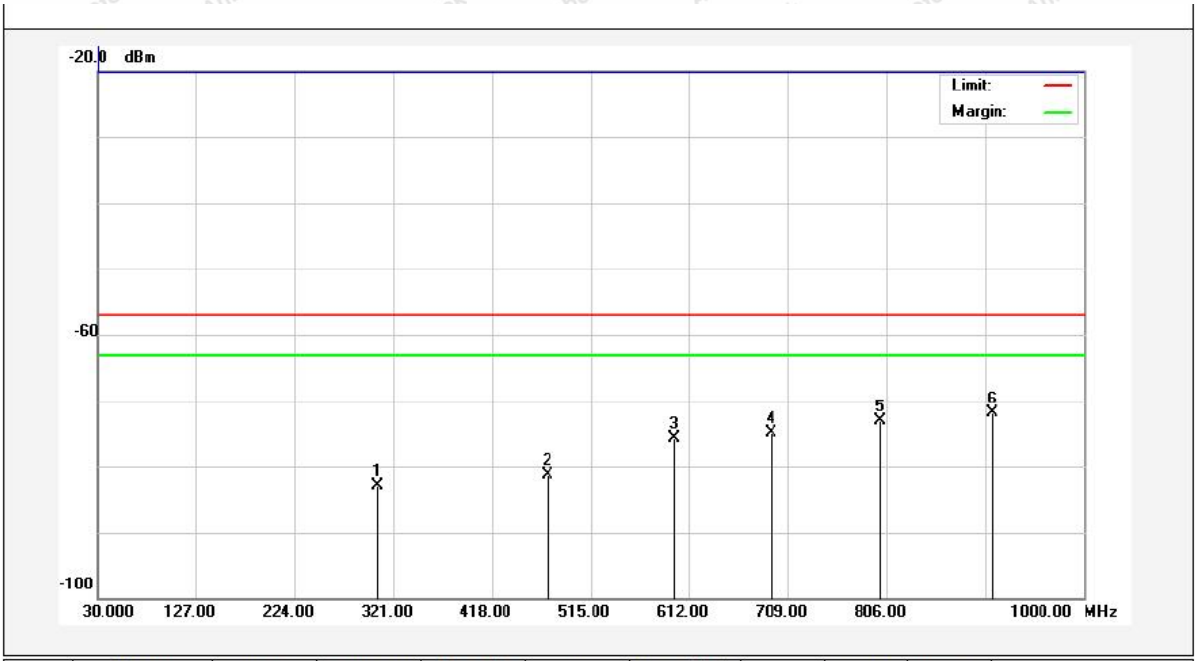
Test Results(30MHz-1000MHz)

Frequency (MHz) 2402

Power Source: DC 3.3V

Polarization: Vertical

Temp.(℃)/Hum.(%RH): 25.7℃/49%RH



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	306.4499	-78.58	-4.36	-82.94	-57.00	-25.94	peak			
2	473.2900	-79.28	-2.03	-81.31	-57.00	-24.31	peak			
3	597.4500	-79.88	4.27	-75.61	-57.00	-18.61	peak			
4	692.5099	-77.78	2.91	-74.87	-57.00	-17.87	peak			
5	800.1798	-79.17	6.03	-73.14	-57.00	-16.14	peak			
6	909.7898	-79.64	7.74	-71.90	-57.00	-14.90	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

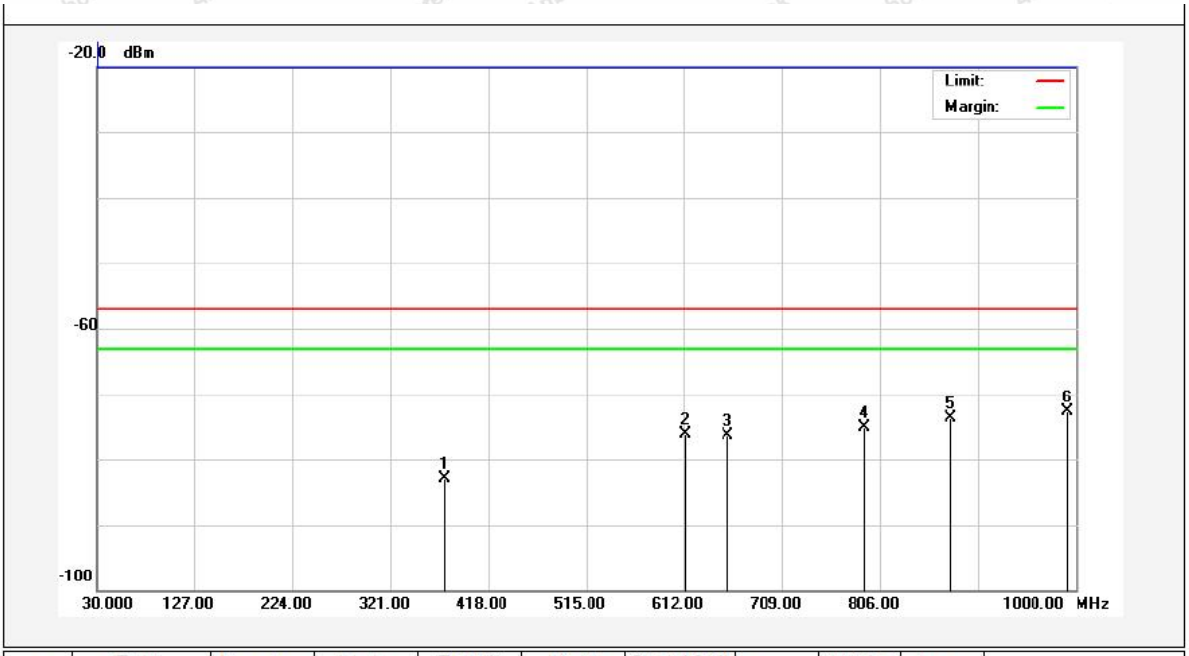
Test Results(30MHz-1000MHz)

Frequency (MHz) 2480

Power Source: DC 3.3V

Polarization: Horizontal

Temp.(℃)/Hum.(%RH): 25.7℃/49%RH



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	374.3500	-80.83	-2.07	-82.90	-57.00	-25.90	peak			
2	613.9400	-80.20	4.06	-76.14	-57.00	-19.14	peak			
3	655.6499	-79.49	3.15	-76.34	-57.00	-19.34	peak			
4	791.4500	-80.79	5.74	-75.05	-57.00	-18.05	peak			
5	876.8097	-80.79	7.08	-73.71	-57.00	-16.71	peak			
6	991.2699	-82.22	9.59	-72.63	-57.00	-15.63	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

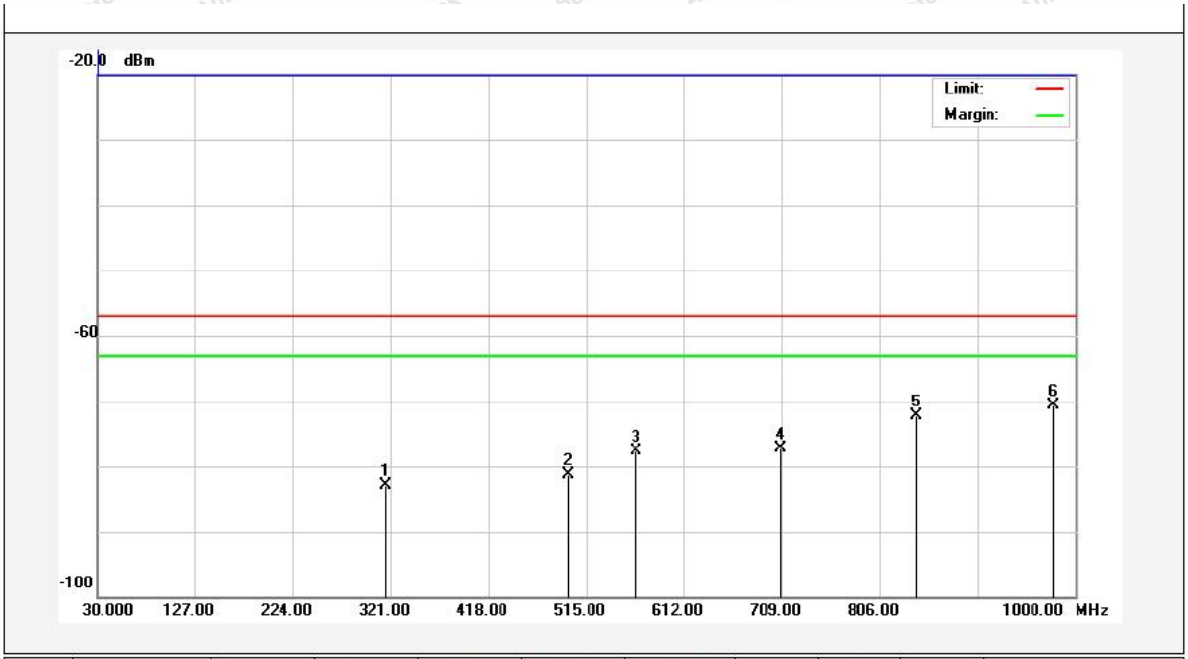
Test Results(30MHz-1000MHz)

Frequency (MHz) 2480

Power Source: DC 3.3V

Polarization: Vertical

Temp.(℃)/Hum.(%RH): 25.7℃/49%RH



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	316.1499	-78.77	-4.14	-82.91	-57.00	-25.91	peak			
2	497.5400	-80.10	-1.21	-81.31	-57.00	-24.31	peak			
3	564.4699	-80.32	2.71	-77.61	-57.00	-20.61	peak			
4	708.0298	-80.31	3.10	-77.21	-57.00	-20.21	peak			
5	842.8600	-78.67	6.46	-72.21	-57.00	-15.21	peak			
6	978.6598	-79.95	9.28	-70.67	-57.00	-13.67	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

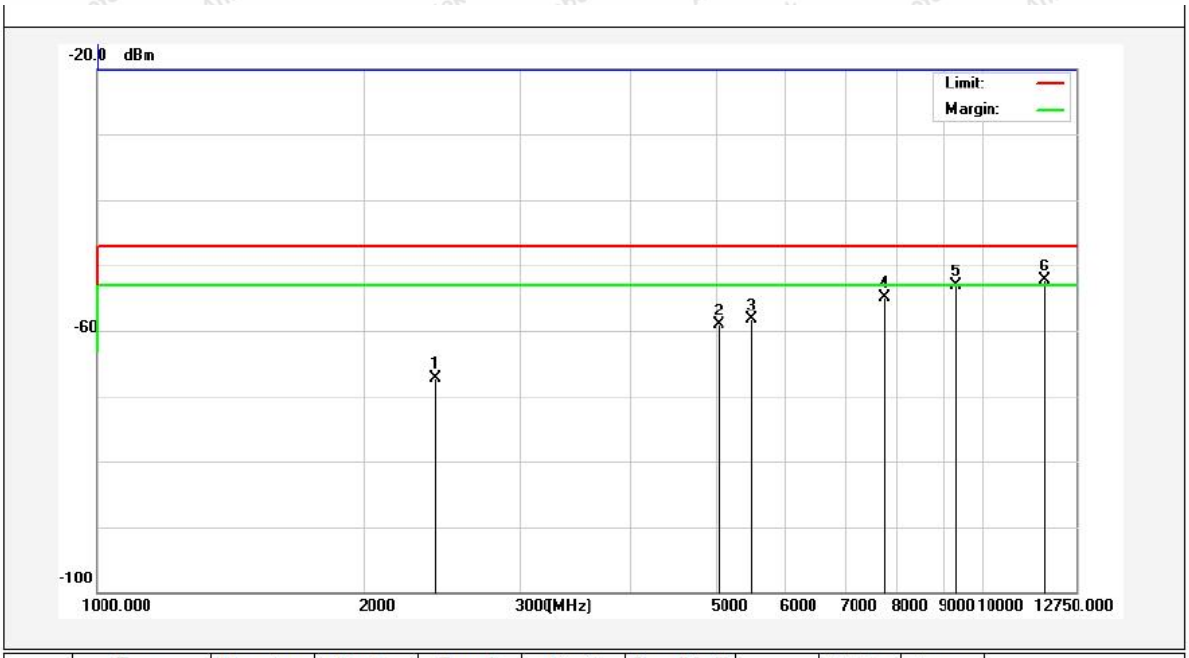
Test Results(1GHz-12.75GHz)

Frequency (MHz) 2402

Power Source: DC 3.3V

Polarization: Horizontal

Temp.(℃)/Hum.(%RH): 25.7℃/49%RH



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2406.584	-49.54	-17.79	-67.33	-47.00	-20.33	peak			
2	5047.827	-52.00	-7.10	-59.10	-47.00	-12.10	peak			
3	5490.176	-52.42	-5.91	-58.33	-47.00	-11.33	peak			
4	7721.909	-57.63	2.76	-54.87	-47.00	-7.87	peak			
5	9322.501	-58.63	5.45	-53.18	-47.00	-6.18	peak			
6	11782.552	-104.45	52.09	-52.36	-47.00	-5.36	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

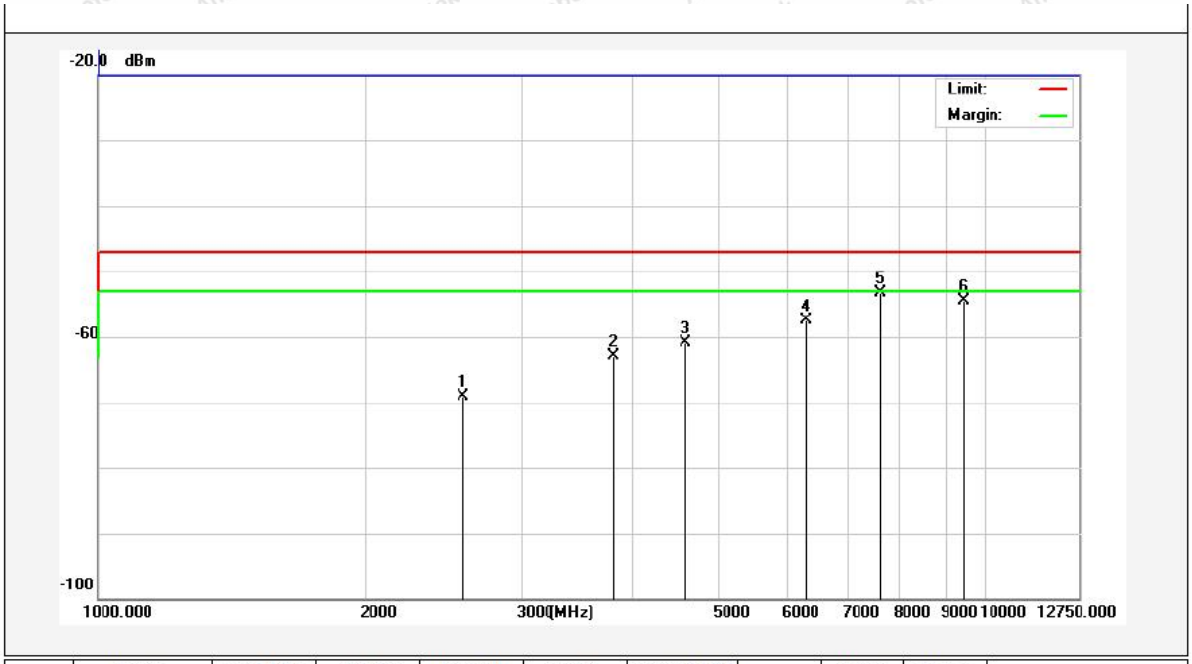
Test Results(1GHz-12.75GHz)

Frequency (MHz) 2402

Power Source: DC 3.3V

Polarization: Vertical

Temp.(℃)/Hum.(%RH): 25.7℃/49%RH



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2571.250	-51.93	-17.07	-69.00	-47.00	-22.00	peak			
2	3824.757	-51.82	-11.07	-62.89	-47.00	-15.89	peak			
3	4582.422	-52.18	-8.75	-60.93	-47.00	-13.93	peak			
4	6267.190	-54.93	-2.57	-57.50	-47.00	-10.50	peak			
5	7624.250	-56.00	2.70	-53.30	-47.00	-6.30	peak			
6	9441.913	-60.56	6.04	-54.52	-47.00	-7.52	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

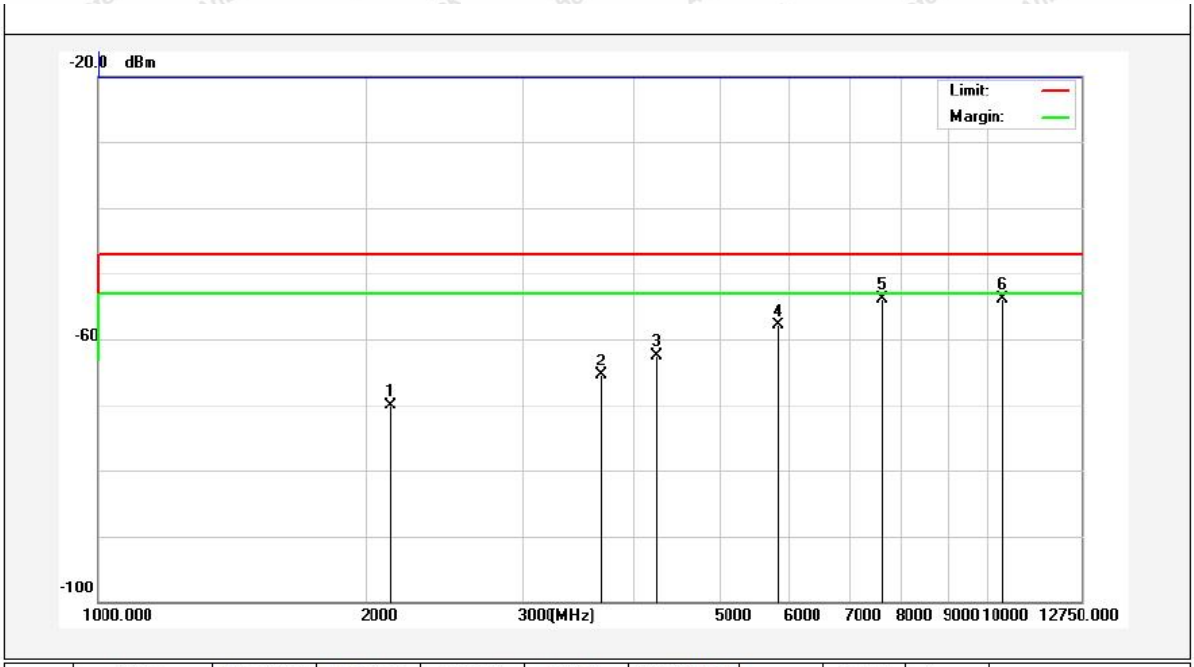
Test Results(1GHz-12.75GHz)

Frequency (MHz) 2480

Power Source: DC 3.3V

Polarization: Horizontal

Temp.(℃)/Hum.(%RH): 25.7℃/49%RH



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2135.217	-51.71	-18.34	-70.05	-47.00	-23.05	peak			
2	3681.470	-53.38	-12.11	-65.49	-47.00	-18.49	peak			
3	4267.178	-52.87	-9.56	-62.43	-47.00	-15.43	peak			
4	5821.207	-53.43	-4.47	-57.90	-47.00	-10.90	peak			
5	7624.250	-56.50	2.70	-53.80	-47.00	-6.80	peak			
6	10453.949	-61.23	7.30	-53.93	-47.00	-6.93	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

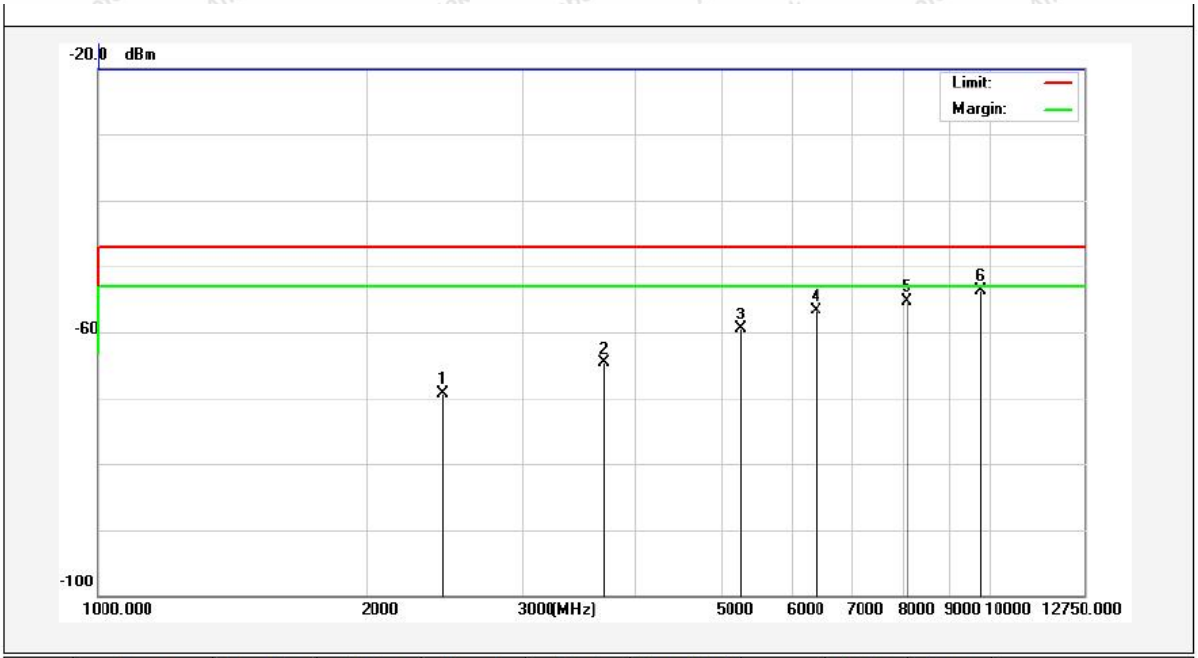
Test Results(1GHz-12.75GHz)

Frequency (MHz) 2480

Power Source: DC 3.3V

Polarization: Vertical

Temp.(℃)/Hum.(%RH): 25.7℃/49%RH



No.	Freq. (MHz)	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2443.622	-51.60	-17.72	-69.32	-47.00	-22.32	peak			
2	3690.853	-52.76	-12.02	-64.78	-47.00	-17.78	peak			
3	5271.062	-53.30	-6.22	-59.52	-47.00	-12.52	peak			
4	6379.864	-54.36	-2.24	-56.60	-47.00	-9.60	peak			
5	8063.403	-57.95	2.59	-55.36	-47.00	-8.36	peak			
6	9759.591	-60.60	6.93	-53.67	-47.00	-6.67	peak			

Note: Result = Reading + Factor Over Limit = Result - Limit

Conducted Measurement:

Please refer to Appendix F of the Appendix Test Data.

10. Receiver Blocking

10.1. Test Limit

This requirement applies to all receiver categories.

RECEIVER CATEGORY		
Category 1☐	Category 2☒	Category 3☐
Minimum performance criterion	PER ≦10 %☒	
	Alternative performance criteria☐	

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.

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

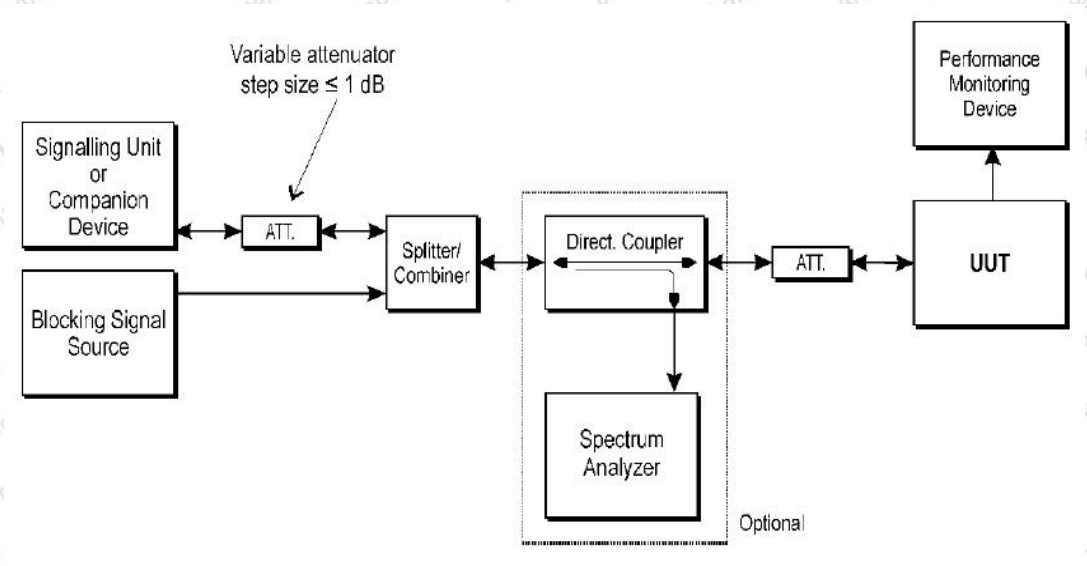
NOTE 1: OCBW is in Hz.
NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 26 dB where P_{min} is the minimum level of wanted signal 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.

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.

10.2. Test Setup



10.3. Test Procedure

Refer to ETSI EN 300 328 V2.2.2, clause 5.4.11 for the test conditions and the measurement method.

Step 1:

• For non-FHSS equipment, the UUT shall be set to the lowest operating channel on which the blocking test has to be performed.

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.

• Unless the option provided in note 2 of the applicable table referred to in clause 5.4.11.2.1 is used, the level of the wanted signal shall be set to the value provided in the table corresponding to the receiver category and type of equipment. The test procedure defined in clause 5.4.2, and more in particular clause 5.4.2.2.1.2, can be used to measure the (conducted) level of the wanted signal however no correction shall be made for antenna gain of the companion device (step 6 in clause 5.4.2.2.1.2 shall be ignored). This level may be measured directly at the output of the companion device and a correction is made for the coupling loss into the UUT. The actual level for the wanted signal shall be recorded in the test report.

• When the option provided in note 2 of the applicable table referred to in clause 5.4.11.2.1 is used, 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 note 2 of the applicable 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.

• If the performance criteria as specified in clause 4.3.1.12.3 or clause 4.3.2.11.3 are met then proceed to step 6.

Step 5:

• If the performance criteria as specified in clause 4.3.1.12.3 or clause 4.3.2.11.3 is not met, step 3 and step 4 shall be repeated after that the frequency of the blocking signal set in step 2 has been increased with a value equal to the Occupied Channel Bandwidth except:

- For the blocking frequency 2 380 MHz, where this frequency offset shall be less than or equal to 10 MHz. If this frequency offset is more than 7 MHz, the level of the wanted signal shall be increased by 3 dB.

- For the blocking frequency 2 503,5 MHz, where this frequency offset shall be less than or equal to 10 MHz. If this frequency offset is more than 7 MHz, the level of the wanted signal shall be decreased by 3 dB.

• If the performance criteria as specified in clause 4.3.1.12.3 or clause 4.3.2.11.3 is still not met, step 3 and step 4 shall be repeated after that the frequency of the blocking signal set in step 2 has been decreased with a value equal to the Occupied Channel Bandwidth except:

- For the blocking frequency 2 380 MHz, where this frequency offset shall be less than or equal to 10 MHz. If this frequency offset is more than 7 MHz, the level of the wanted signal shall be decreased by 3 dB.

- For the blocking frequency 2 503,5 MHz, where this frequency offset shall be less than or equal to 10 MHz. If this frequency offset is more than 7 MHz, the level of the wanted signal shall be increased by 3 dB.

• If the performance criteria as specified in clause 4.3.1.12.3 or clause 4.3.2.11.3 is still not met, the UUT fails to comply with the Receiver Blocking requirement and step 6 and step 7 are no longer required.

• It shall be recorded in the test report whether the shift of blocking frequencies as described in the present step was used.

Step 6:

• Repeat step 4 and step 5 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 7:

• For non-FHSS equipment, repeat step 2 to step 6 with the UUT operating at the highest operating channel on which the blocking test has to be performed.

Step 8:

• It shall be assessed and recorded in the test report whether the UUT complies with the Receiver Blocking requirement.

10.4. Minimum Performance Declaration

	CH	Pmin (dBm)	PER (≦10%)
GFSK	00	-91	Pass
	39	-91	Pass

Note: Pmin is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria.

10.5. Test Data

Temperature:	25°C	Relative Humidity:	60 %
Pressure:	1012 hPa	Test Voltage:	DC 3.3V

Test Mode	Test Channel	Wanted Signal Mean Power from Companion Device (dBm/MHz)	Blocking Signal Frequency (MHz)	Blocking Signal Power (dBm)	Type of Blocking Signal	PER (%)	Test Result
GFSK	CH00	-68.84	2380	-30.04	CW	0.63	PASS
			2504			1.00	PASS
			2300			1.32	PASS
			2584			0.92	PASS
	CH39	-68.84	2380	-30.04	CW	1.14	PASS
			2504			1.48	PASS
			2300			1.11	PASS
			2584			1.37	PASS

Note:

1. According to ETSI EN 300328 clause 5.4.11.1. Only the lowest data rate(BLE_1M) mode was tested and recorded.
2. Antenna Gain(Peak) is 3.96 dBi, so the above table is given with the calculated levels.

APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph_RF

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

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