

# ETSI EN 300 328 V2.2.2: 2019

## TEST REPORT

### FOR

### Bind Price tag

**Model No.: SID-ESL-44A, SID-ESL-0xA (x=1, 2, 3, 4, 6, ..., 100)**

**Trademark: N/A**

**Report No.: E01A23030814R00401**

**Issue Date: April 13, 2023**

*Prepared for*

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## 1. TEST RESULT CERTIFICATION

Applicant : Guangdong SID Technology Co., Ltd.  
Room 101, Building 5, No. 21, Dongke Road, Dongcheng Street, Dongguan City,  
Guangdong Province.

Manufacturer : Guangdong SID Technology Co., Ltd.  
Room 101, Building 5, No. 21, Dongke Road, Dongcheng Street, Dongguan City,  
Guangdong Province.

EUT : Bind Price tag

Model Name : SID-ESL-44A, SID-ESL-0xA (x=1, 2, 3, 4, 6, ..., 100)

Input Rating : Battery 3V CR2025\*2

Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
ETSI EN 300 328 V2.2.2: 2019	PASS

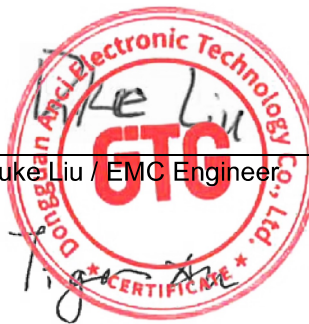
The device described above is tested by Dong Guan Anci Electronic Technology Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Dong Guan Anci Electronic Technology Co., Ltd. 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 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Dong Guan Anci Electronic Technology Co., Ltd.

Date of Test : March 29, 2023 to April 08, 2023

Prepared by : Duke Liu / EMC Engineer

Reviewer & Authorized Signer : Tiger Xu / Supervisor



## 2. EUT DESCRIPTION

Product:	Bind Price tag
Model Number:	SID-ESL-44A, SID-ESL-0xA (x=1, 2, 3, 4, 6, ..., 100)
Modulation:	GFSK
Frequency Range:	2400MHz-2483.5 MHz
Number of Channels:	40 channels
Antenna:	PCB antenna
Test power supply:	Battery 3V CR2025*2
Antenna Gain:	0.5 dBi
Temperature Range:	0° C ~ +40° C
Product software version:	V1.0
Product hardware version:	V1.0

*Note: for more details, please refer to the User's manual of the EUT.*

## INFORMATION AS REQUIRED BY EN 300 328 V2.2.2

EN 300 328	Information Is Provided By The Manufacturer
The Type Of Modulation Used By The Equipment	<input checked="" type="checkbox"/> DSSS <input type="checkbox"/> other forms of modulation
In Case Of FHSS Modulation:	<input type="checkbox"/> In case of non-Adaptive Frequency Hopping equipment The number of Hopping Frequencies: <input checked="" type="checkbox"/> In case of Adaptive Frequency Hopping Equipment The maximum number of Hopping Frequencies:40 The minimum number of Hopping Frequencies: 40
The Worst Case Operational Mode For Each Of The Following Tests:	Receiver spurious emissions <span style="float: right;">PASS</span>
The Different Transmit Operating Modes (Tick All That Apply):	<input checked="" type="checkbox"/> Operating mode 1: Single Antenna Equipment <input checked="" type="checkbox"/> Equipment with only 1 antenna <input type="checkbox"/> Equipment with 2 diversity antennas but only 1 antenna active at any moment in time <input type="checkbox"/> Smart Antenna Systems with 2 or more antennas, but operating in a (legacy) mode where only 1 antenna is used. (e.g. IEEE 802.11™ [i.3] legacy mode in smart antenna systems)
	<input type="checkbox"/> Operating mode 2: Smart Antenna Systems - Multiple Antennas without beam forming <input type="checkbox"/> Single spatial stream / Standard throughput / (e.g. IEEE 802.11™ [i.3] legacy mode) <input type="checkbox"/> High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1 <input type="checkbox"/> High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2
	<input type="checkbox"/> Operating mode 3: Smart Antenna Systems - Multiple Antennas with beam forming <input type="checkbox"/> Single spatial stream / Standard throughput (e.g. IEEE 802.11™ [i.3] legacy mode) <input type="checkbox"/> High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1 <input type="checkbox"/> High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2
Operating Frequency Range(S) Of The Equipment:	Operating Frequency Range: 2402 MHz to 2480 MHz
Type of Equipment (stand-alone, combined, plug-in radio device, etc.):	<input checked="" type="checkbox"/> Stand-alone <input type="checkbox"/> Combined Equipment (Equipment where the radio part is fully integrated within another type of equipment) <input type="checkbox"/> Plug-in radio device (Equipment intended for a variety of host systems) <input type="checkbox"/> Other
Describe the test modes available which can facilitate testing:	Modulation Mode: GFSK Test Frequency: Low Frequency, Middle Frequency, High Frequency

The equipment type (e.g. Bluetooth®, IEEE 802.11™ [i.3], proprietary, etc.):	2.4G RFID
NOTE: N/A means not applicable	

## Modified History

Rev.	Summary	Date of Rev.	Report No.
Ver.1.0	Original Report	/	E01A23030814R00401

### 3. SUMMARY OF TEST RESULT

Clause (EN 300 328)	Test Parameter	Verdict	Remark
4.3.2.10	Receiver Spurious Emissions	PASS	
4.3.2.11	Receiver Blocking	PASS	
NOTE1 N/A means not applicable :			



## 4. TEST METHODOLOGY

### 4.1 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to its specifications, the EUT must comply with the requirements of the following standards:

ETSI EN 300 328 –Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

### 4.2 MEASUREMENT EQUIPMENT USED

#### For Spurious Emissions Test

Equipment Type	Manufacturer	Model No.	Serial Number	Calibrated until
EMI Test Receiver	Rohde & Schwarz	ESPI	100502	2023-11-12
EMI Test Receiver	Rohde & Schwarz	FSV40	102257	2023-11-12
Pre-Amplifier	HP	8447D	2727A06172	2023-05-22
Pre-Amplifier	A-INFO	LA1018N4009	J1013130524001	2023-05-22
Bilog Antenna	Schwarzbeck	VULB9163	VULB9163-588	2023-05-22
Horn Antenna	A-INFO	LB-10180-SF	J2031090612123	2023-05-22
Cable	N/A	N/A	6#	2023-05-22
Cable	N/A	N/A	1-1#	2023-05-22
Cable	N/A	N/A	1-2#	2023-05-22
Cable	N/A	N/A	7#	2023-05-22
3m Semi-anechoic Chamber	chengyu	9m*6m*6m	N/A	2023-05-22
Test Software	Farad	EZ-EMC Ver:ANCI-3A1	N/A	N/A
Band reject Filter(50dB)	WI/DE	WRCGV-2400(2400-2485MHz)	2	2023-11-12

#### For Other Test Items:

Equipment Type	Manufacturer	Model No.	Serial Number	Calibrated until
Spectrum Analyzer	Rohde & Schwarz	FSV40	102257	2023-11-12
WIDEBAND RADIO COMMUNICATION	Rohde & Schwarz	CMW500	157423	2023-11-12
Vector Signal Generator	Agilent	5182A	MY50140563	2023-11-12
ESG SERIES SIGNAL GENERATOR	Agilent	E4421B	40050971	2023-11-12
USB RF Power sensor	RadiPower	RPR3006W	17I00015SNO88	2023-11-12
RF Test Software	MAIWEI	MTS 8310	N/A	N/A
Humidity Chamber	GAOXIN	GX-3000-150LHT	1801027	2023-05-22
Dc source	RUIYUAN	WYK-6030K	180828026030	2023-11-12

### 4.3 DESCRIPTION OF TEST MODES

The EUT has been tested under its typical operating condition.

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

The EUT has been tested under its typical operating condition. so those data rate (GFSK: 1 Mbps;) were used for all test.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Frequency and Channel list for BLE:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2400	18	2438	...	...
1	2404	19	2440	37	2476
2	2406	20	2440	38	2478
...	...	...	...	39	2483
Note: $f_c = 2402\text{MHz} + k \times 2\text{MHz}$ $k=0$ to 39					

Test Frequency and channel for BLE:

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2400	19	2440	39	2483

## 5. FACILITIES AND ACCREDITATIONS

### 5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

Dong Guan Anci Electronic Technology Co., Ltd.

1&2/F., Building 2, Zone A, Zhongda Marine Biotechnology Reserch and Development Base, No.9, Xincheng Avenue, Songshanhu High-technology Industrial Development Zone, Dongguan, Guangdong, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

### 5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 5.3 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description	
Name of Firm	: Dong Guan Anci Electronic Technology Co., Ltd..
Site Location	: 1-2 Floor, Building A, No.11, Headquarters 2 Road, Songshan, Lake Hi-tech Industrial Development Zone, Dongguan City, Guangdong Pr., China

## 6. TEST SYSTEM UNCERTAINTY

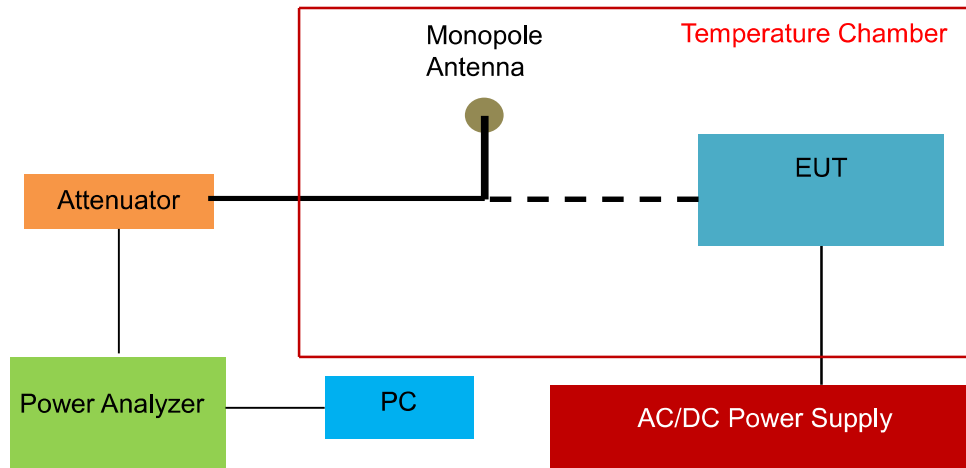
Maximum measurement uncertainty of the test system

Test Parameter	Measurement Uncertainty
Receiver Spurious Emissions	$\pm 2.7\%$
Temperature	$\pm 3.2\%$
Humidity	$\pm 2.5\%$

## 7. SETUP OF EQUIPMENT UNDER TEST

### 7.1 SETUP CONFIGURATION OF EUT

Conducted measurements configuration of EUT shall be as follows:

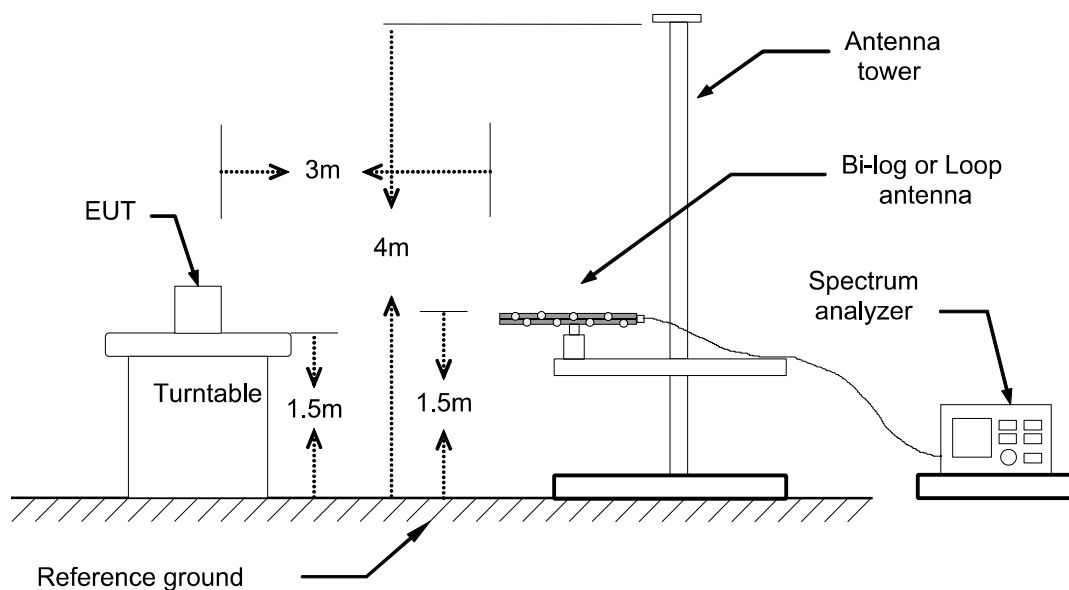


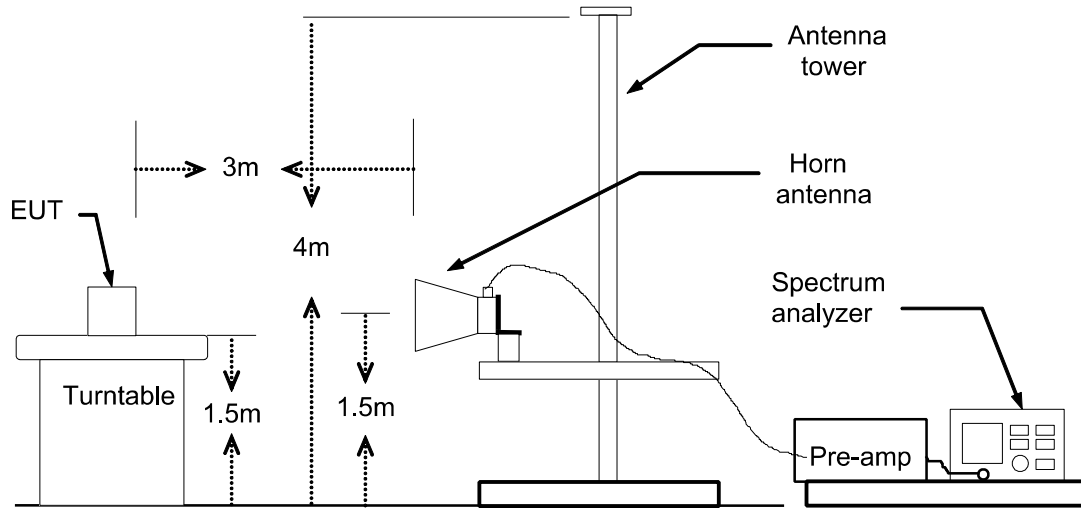
#### Remarks:

The Signal Analyzer could be connected to a monopole antenna or directly connected to the EUT, if the EUT has already employing an antenna connector.

Radiated measurements configuration of EUT shall be as follows:

#### Below 1GHz



**Above 1GHz****7.2 SUPPORT EQUIPMENT**

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
1.	N/A	N/A	N/A	N/A	N/A

**Notes:**

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

## 8. ETSI EN 300 328 REQUIREMENTS

### 8.1 RECEIVER SPURIOUS EMISSIONS

#### 8.1.1 Applicable standard

ETSI EN 300 328 clause 4.3.2.10

#### 8.1.2 Conformance Limit

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

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

Frequency Range	Maximum power	Measurement Width
30 MHz to 1 GHz	-57 dBm	100kHz
1 GHz to 12.75 GHz	-47 dBm	1MHz

#### 8.1.3 Test Configuration

The measurements for emissions in the spurious domain shall only be performed at normal test conditions.

Radiated measurements shall be used for equipment.

Conducted measurements shall be used for equipment.

#### 8.1.4 Test Procedure

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.11.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.11.2 for the measurement methods.

#### ■ Conducted measurement

##### ● Introduction

The spectrum in the spurious domain (see figure 1 or figure 3) shall be searched for emissions that exceed the limit values given in table 4 or table 12 or that come to within 6 dB below these limits. Each occurrence shall be recorded.

The measurement procedure contains 2 parts.

##### ● Pre-scan

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

##### 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:  $\geq 19\,400$ ; For spectrum analysers not supporting this high number of sweep points, the frequency band may need to be segmented.
- Sweep time: For non continuous transmissions (duty cycle less than 100 %), the sweep time shall be sufficiently long, such that for each 100 kHz frequency step, the measurement time is greater than two transmissions of the UUT, on any channel.  
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 any of the hopping frequencies.

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

Allow the trace to stabilize. Any emissions identified during the sweeps above and that fall within the 6 dB range below the applicable limit or above, shall be individually measured using the procedure in clause 5.4.9.2.1.3 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:  $\geq 23\,500$ ; For spectrum analysers not supporting this high number of sweep points, the frequency band may need to be segmented.
- Sweep time: For non continuous transmissions (duty cycle less than 100 %), the sweep time shall be sufficiently long, such that for each 1 MHz frequency step, the measurement time is greater than two transmissions of the UUT, on any channel.  
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 any of the hopping frequencies.

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

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

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 5.4.9.2.1.3.

Step 4:

- In case of conducted measurements on smart antenna systems (equipment with multiple transmit chains), step 2 and step 3 need to be repeated for each of the active transmit chains (Ach). The limits used to identify emissions during this pre-scan need to be reduced with  $10 \times \log_{10}(\text{Ach})$  (number of active transmit chains).
- Measurement of the emissions identified during the pre-scan

The procedure in step 1 to step 4 below shall be used to accurately measure the individual unwanted emissions identified during the pre-scan measurements above. This method assumes the spectrum analyser has a Time Domain Power function.

Step 1:

The level of the emissions shall be measured using the following spectrum analyser settings:

- Measurement Mode: Time Domain Power
- Centre Frequency: Frequency of the emission identified during the pre-scan
- Resolution Bandwidth: 100 kHz ( $< 1\text{ GHz}$ ) / 1 MHz ( $> 1\text{ GHz}$ )
- Video Bandwidth: 300 kHz ( $< 1\text{ GHz}$ ) / 3 MHz ( $> 1\text{ GHz}$ )
- Frequency Span: Zero Span
- Sweep mode: Single Sweep
- Sweep time:  $> 120\%$  of the duration of the longest burst detected during the measurement of the RF Output Power
- Sweep points: Sweep time  $[\mu\text{s}] / (1\text{ }\mu\text{s})$  with a maximum of 30 000
- Trigger: Video (burst signals) or Manual (continuous signals)
- Detector: RMS

Step 2:

- Set a window where the start and stop indicators match the start and end of the burst with the highest level and record the value of the power measured within this window. If the spurious emission to be measured is a continuous transmission, the measurement window shall be set to match the start and stop times of the sweep.

Step 3:

In case of conducted measurements on smart antenna systems (equipment with multiple transmit chains),



step 2 needs to be repeated for each of the active transmit chains (Ach).

Sum the measured power (within the observed window) for each of the active transmit chains.

Step 4:

The value defined in step 3 shall be compared to the limits defined in table 4 or table 12.

■ Radiated measurement

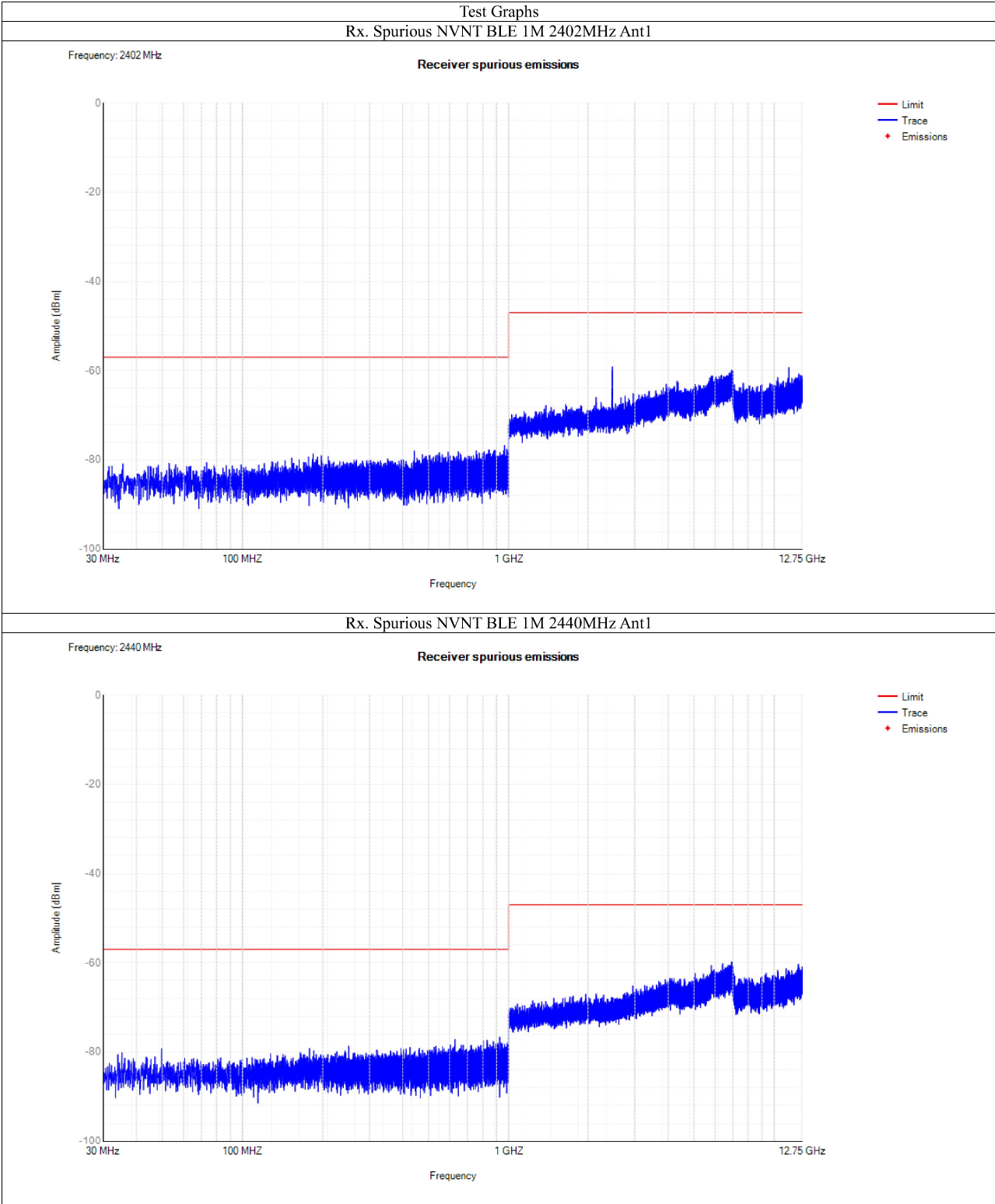
The test site as described in annex B and applicable measurement procedures as described in annex C shall be used.

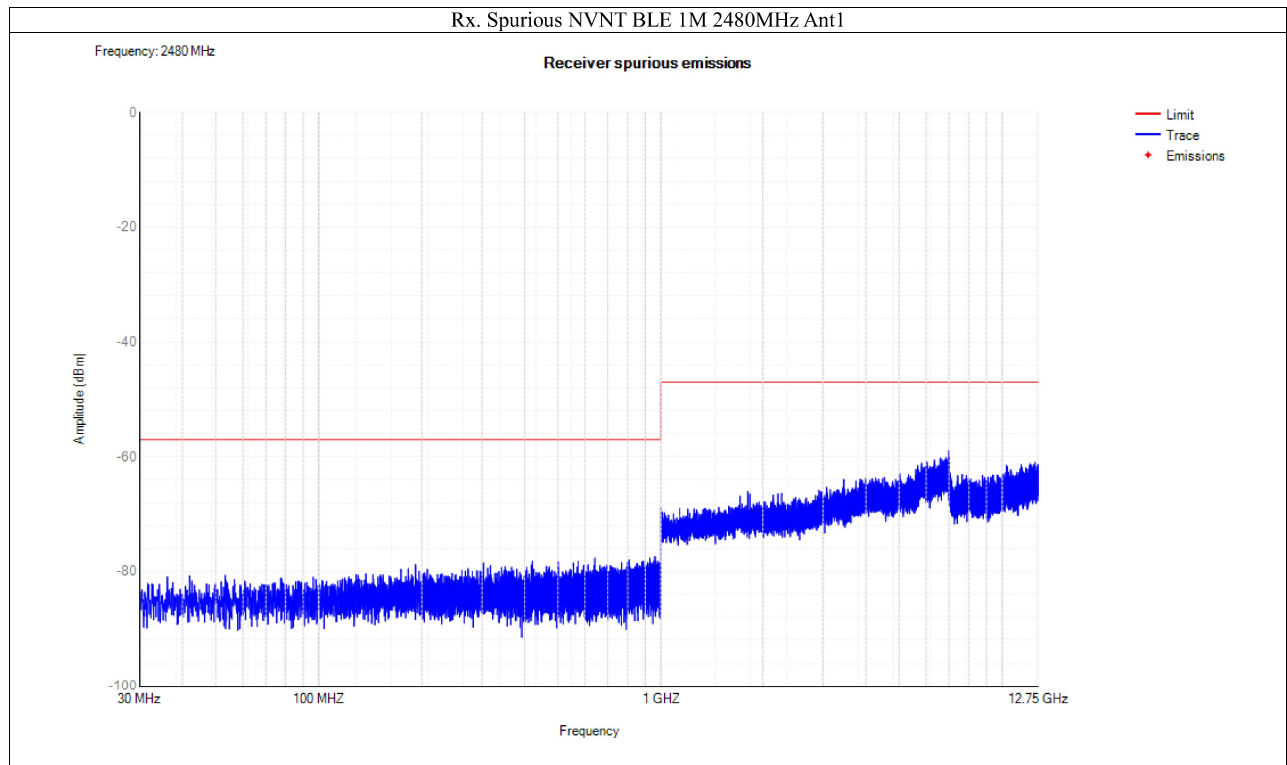
The test procedure is further as described under clause 5.4.9.2.1.

### 8.1.5 Test Results

The data of test mode (GFSK) are recorded in the following pages.

Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Spur Freq (MHz)	Peak (dBm)	RMS (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	30 -1000	963.9	-76.77	NA	-57	Pass
NVNT	BLE 1M	2402	Ant1	1000 -12750	2468.5	-59.13	NA	-47	Pass
NVNT	BLE 1M	2440	Ant1	30 -1000	924.65	-76.64	NA	-57	Pass
NVNT	BLE 1M	2440	Ant1	1000 -12750	6961.5	-59.72	NA	-47	Pass
NVNT	BLE 1M	2480	Ant1	30 -1000	960.85	-77.37	NA	-57	Pass
NVNT	BLE 1M	2480	Ant1	1000 -12750	6976	-58.90	NA	-47	Pass





- Notes:
1. Negative sign (-) in the margin column signify levels below the limit.
  2. The test frequency range is 30MHz to 12.75GHz.
  3. Other emissions found were at least 10 dB below the limit.
  4. Measurement Uncertainty:  $\pm 5.0\text{dB}$ .
  5. Correction value was combined in the calculated result.

## 8.2 Receiver Blocking

### Applicable standard

ETSI EN 300 328 clause 4.3.2.11

#### 8.2.1 Conformance Limit

The minimum performance criterion shall be a PER less than or equal to 10 %. The manufacturer may declare alternative performance criteria as long as that is appropriate for the intended use of the equipment (see clause 5.4.1.t)).

##### ■ General

While maintaining the minimum performance criteria as defined in clause 4.3.1.12.3, the blocking levels at specified frequency offsets shall be equal to or greater than the limits defined for the applicable receiver category provided in below.

##### ● Receiver Category 1

Receiver Blocking parameters for Receiver Category 1 equipment

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 4)	Type of blocking signal
(-133 dBm + 10 × log10(OCBW)) or -68 dBm whichever is less (see note 2)	2 380 2 503,5	-34	CW
(-139 dBm + 10 × log10(OCBW)) or -74 dBm whichever is less (see note 3)	2 300 2 330 2 360 2 524 2 484 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  $P_{\min} + 26 \text{ dB}$  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  $P_{\min} + 20 \text{ dB}$  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 Category 2

Receiver Blocking parameters receiver category 2 equipment

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking signal
$(-139 \text{ dBm} + 10 \times \log_{10}(\text{OCBW}) + 10 \text{ dB})$ or $(-74 \text{ dBm} + 10 \text{ dB})$ 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 Category 3

Receiver Blocking parameters receiver category 3 equipment

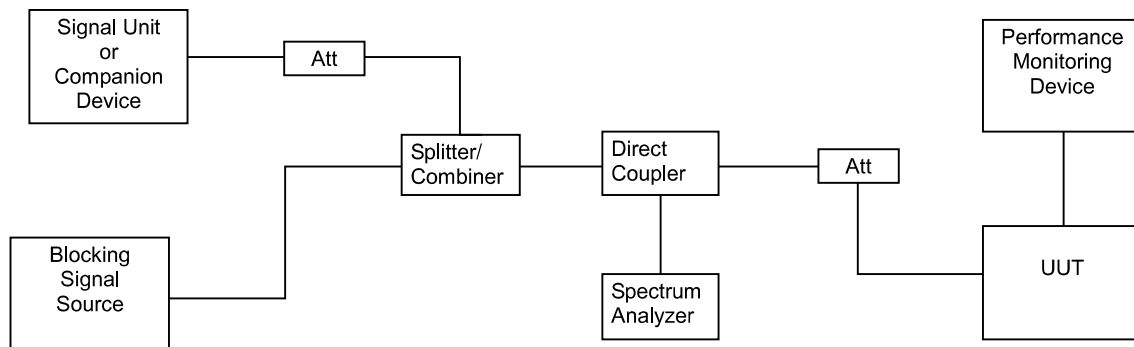
Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking signal
$(-139 \text{ dBm} + 10 \times \log_{10}(\text{OCBW}) + 20 \text{ dB})$ or $(-74 \text{ dBm} + 20 \text{ dB})$ whichever is less (see note 2)	2 380 2 504 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.

### Test Configuration



### Test Procedure

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.11.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.11.2 for the measurement method.

#### ■ Conducted measurement

Adaptive Frequency Hopping equipment using DAA

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  $P_{min}$ .

- 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.

#### ■ Radiated measurements

When performing radiated measurements on equipment with dedicated antennas, measurements shall be repeated for each alternative dedicated antenna.

A test site as described in annex B and applicable measurement procedures as described in annex C shall be used.

The test procedure is further as described under clause 5.4.11.2.1.

The level of the blocking signal at the UUT referred to in step 4 is assumed to be the level in front of the UUT antenna(s). The UUT shall be positioned with its main beam pointing towards the antenna radiating the blocking signal. The position recorded in clause 5.4.2.2.2 can be used.

## Test Results

Receiver category

<input type="checkbox"/>	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.
<input type="checkbox"/>	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.
<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	Other Receiver category	Maximum RF Output Power less than 10 dBm e.i.r.p. No need to test Receiver Blocking

Operation Mode:

☒ GFSK

Test Frequency:

☒ 2402MHz

☐ 2480MHz

Temperature:

22°C

Test Date:

Apr. 07, 2023

Humidity:

53 % RH

Tested by:

Fan

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm)	Type of blocking signal	PER(%)	Result
-59	2 380	-34	CW	2.1%	PASS
	2 504	-34	CW	1.3%	PASS
	2 300	-34	CW	0.6%	PASS
	2 584	-34	CW	0.2%	PASS
OCW=1MHz NOTE: N/A means not applicable					

Operation Mode: <input checked="" type="checkbox"/> GFSK Test Frequency: <input type="checkbox"/> 2402MHz <input checked="" type="checkbox"/> 2480MHz Temperature: 22°C Test Date: Apr. 07, 2023 Humidity: 53 % RH Tested by: Fan					
Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm)	Type of blocking signal	PER(%)	Result
-59	2 380	-34	CW	0.8%	PASS
	2 504	-34	CW	1.2%	PASS
	2 300	-34	CW	0.7%	PASS
	2 584	-34	CW	1.3%	PASS
OCW=1MHz NOTE: N/A means not applicable					

## **9 APPENDIX PHOTOGRAPHS OF EUT**

Please refer to the report :E01A23030814E00401.

*END OF REPORT*