

nRF52832 QFAA ETSI Receiver Blocking report

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Purpose

The purpose of this report is to illustrate the test results for ETSI Receiver Blocking defined in ETSI EN 300 328 V2.1.1 (2016-11). The tests are executed in Nordic Semiconductor Test&Verification characterization laboratory in Trondheim and can only be used as an engineering evidence which is not meant to replace any ETSI conformance testing.

Categorization

The nRF52832 QFAA device is categorized as a “Receiver category 2” which is defined in the ETSI EN 300 328 V2.1.1 (2016-11).

4.2.3.2.2 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.

Performance Criteria

The blocking performance criteria is based on ETSI EN 300 328 V2.1.1 (2016-11).

4.3.2.11.3 Performance Criteria

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

The minimum level of wanted signal (P_{\min}) is based on the same performance criteria.

Limits

The acceptance limits for Receiver category 2 device provided in the Table 15.

4.3.2.11.4.3 Receiver Category 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)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 2)	Type of blocking signal
$P_{\min} + 6 \text{ dB}$	2 380 2 503,5	-57	CW
$P_{\min} + 6 \text{ dB}$	2 300 2 583,5	-47	CW
NOTE 1: P_{\min} is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.			
NOTE 2: The levels specified are levels in front of the UUT antenna. In case of conducted measurements, the levels have to be corrected by the actual antenna assembly gain.			

Test Method

The nRF52832 QFAA Receiver Blocking test has been performed as conductive measurements. The optional spectrum analyzer with the directional coupler has not been used.

5.4.11.2.1 Conducted measurements

For systems using multiple receive chains only one chain (antenna port) need to be tested. All other receiver inputs shall be terminated.

Figure 6 shows the test set-up which can be used for performing the receiver blocking test.

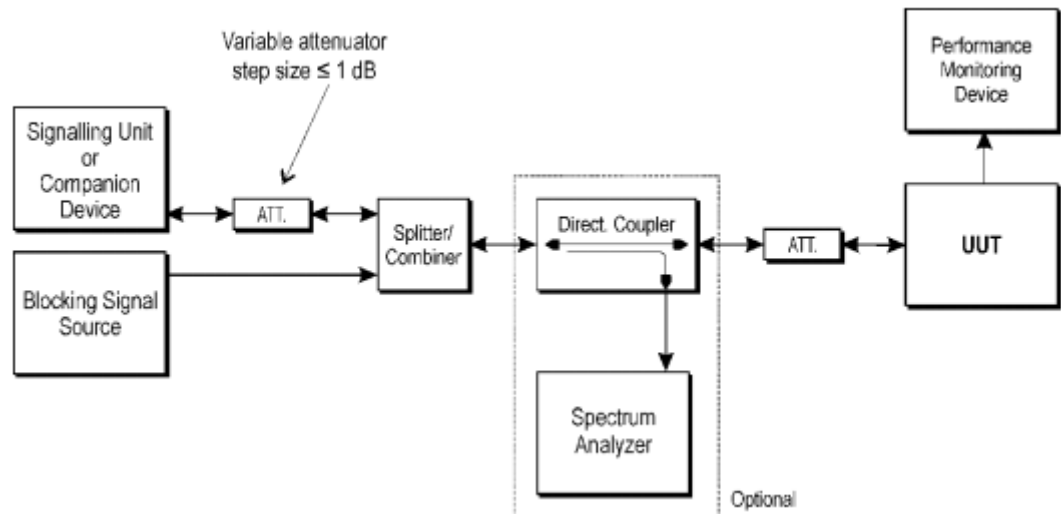


Figure 6: Test Set-up for receiver blocking

Measurement Results

Four nRF52832 QFAA devices were tested in Nordic Semiconductor Test&Verification characterization laboratory in Trondheim, Norway. The test were all passing the limits with the performance criteria defined in the ETSI EN 300 328 V2.1.1 (2016-11), no antenna assembly gain correction used. Tested data rates were 1Mbps and 2Mbps with payload length of 255 bytes with normal Nordic DTM FW.

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 2)	Type of blocking signal	Verdict
$P_{\min} + 6 \text{ dB}$	2 380 2 503,5	-47 (-57dBm + 10dB)	CW	Ch2402: PASS Ch2440: PASS Ch2480: PASS
$P_{\min} + 6 \text{ dB}$	2 300 2 583,5	-37 (-47dBm + 10dB)	CW	Ch2402: PASS Ch2440: PASS Ch2480: PASS

NOTE 1: P_{\min} is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 2: The levels specified are levels in front of the UUT antenna. In case of conducted measurements, the levels have to be corrected by the actual antenna assembly gain.