**3GPP TSG-RAN WG4 Meeting #112 R4-2413515**

**Maastricht, Netherlands, 19th – 23rd August, 2024**

**Title: Way Forward for [112][308] NR\_duplex\_evo\_BSRF**

**Agenda Item: 8.19.4**

**Source: Huawei, HiSilicon**

**Document for: Approval**

## 1.1 Total dynamic range

**Agreement:**

* Formulate the total power dynamic range requirement for SBFD slots using equation based on declaration (of rated output power with all DL sub-band RBs active for SBFD), instead of table used for existing total power dynamic range requirement.

## 1.2. Transmit ON/OFF power

**Agreement:**

* Transmitter ON/OFF power should apply to normal symbol and it is not applicable within SBFD symbol.

## 1.3. ACLR and OBUE

**Agreement:**

* When coexisting with legacy TDD system in adjacent channel, RAN4 shall apply the legacy ACLR and OBUE requirement for SBFD-capable BS.

**WF:**

* FFS on the followings:
	+ For FR1 macro deployments, when coexisting with new SBFD system in adjacent channel, RAN4 to define additional ACLR and/or OBUE requirement to ensure feasible coexistence with SBFD-capable gNB. The assumption for the victim BS DESENS and CL of BS2BS is FFS.

## 1.4. Joint measurement for normal DL symbols/slots and SBFD symbols/slots

**WF:**

* FFS on the followings:
	+ Averaged EVMs for SBFD slots and non-SBFD slots shall be measured separately.
	+ Averaged EVM for SBFD slots shall be calculated only based on the data samples where DLs are allocated within the SBFD slots. The data samples where ULs are allocated within the SBFD slots shall be removed from the calculation of averaged EVM.

## 1.5. OTA sensitivity degradation

**WF:**

* FFS on the options with consideration of the alternative assumptions for the interference considered in the OTA sensitivity degradation:
	+ Alt. 1: RAN4 to discuss allowable degradation due to self-interference, inter-site interference, and inter-sector interference.
	+ Alt. 2: Only self-interference considered
* Options for OTA sensitivity degradation:
	+ Option 1: the degradation value is BS declaration based.
	+ Option 2: a fixed value for degradation provided in the specification.
		- Option 2a: 1.0dB degradation
		- Option 2b: [0.5~1.0] dB degradation
		- Option 2c: Use maximum of 0.5dB for desensitization target value for the OTA sensitivity requirement due to self-interference.

## 1.6. Dynamic range

**WF:**

* FFS on the followings:
	+ Option 1: RAN4 to discuss if the IoT level and wanted signal power level will be derived based on simulation work.
	+ Option 2: The existing dynamic range requirement, RAN4 assume 20dB interference over thermal noise, which is enough to cover the co-channel interference from other base stations.
	+ Option 3: for receiver dynamic requirement, both uplink signals and BS2BS CLI signal should be considered for IoT levels.

## 1.7. ACS requirement

**WF:**

* FFS on the followings:
	+ Option 1: If co-location ACS is not defined, the note in the spec that the ACS requirement is not applied to the co-location scenario is needed.
	+ Option 2: The OTA sensitivity degradation should be taken into account for the baseline REFSENS for ACS requirement.

## 1.8. In-band blocking

**Agreement:**

* On contributing source for in-band blocking requirement, it is only the DL adjacent channel interference.
* RAN4 to not consider any CLI handling scheme effects when defining the in-band blocking requirements.
* For co-existence study,
	+ The reference point for the power level which should be before array gain

**WF:**

* FFS on the followings:
	+ RAN4 needs to discuss on how in-band blocking requirement are derived:
		- Option 1: MCL assumption for BS2BS CLI interference
		- Option 2: Co-existence study
		- Option 3: Both
	+ For co-existence study, RAN4 need firstly agree on the open parameters for simulation assumption:
		- the power level which should be collected from the simulation results to derive in-band blocking levels: power level of interference from adjacent channel only
		- The reference point for the power level which should be before array gain
		- FFS grid-shift values should be considered.
			* Option 1: 10%
			* Option 2: 20%
			* Option 3: 50%
			* Option 4: 100%
		- 99% of the UL SBFD wideband received power CDF

## 1.9. Necessity of New RX intermodulation requirement with 1 interfering signal

**WF:**

* FFS on the followings:
	+ Option 1: Whether IMD requirement for single interfering signal scenario is needed. Investigate whether such a requirement is implicitly captured by the SBFD RX blocking requirement.
	+ Option 2: If RAN4 want to introduce the additional RX intermodulation requirement (a single input signal placed to cause IM with the RX sub-band), the new intermodulation scenario shall be confirmed firstly with evidence showing the proposed scenario exists in practice.

## 1.10. Necessity of New RX intermodulation requirement with 2 interfering signals

**WF:**

* FFS on the following:
	+ Option 1: for the receiver intermodulation requirements, BS2BS CLI should be taken into account for power level for interference signal.