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| SEAMCAT Technical Group (STG)Send to : seamcat@eco.cept.org  |  |
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| Date issued:  | 25.06.2019 |
| Source: | Karl Koch |
| Subject: | action point single sector |

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| **Type of report** (Bug, Enhancement or New Feature) |
| action point for STG |
| **Issue ID** |
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| **SEAMCAT version**  |
| 5.3.0  |
| **SEAMCAT component** **involved** |
| Cellular systems |
| **Background information, reference documents and related tickets** |
| [ST-469](https://ecojira.cept.org/browse/ST-469)*STG(18)062\_Definition of cell.docx [STG 59]*This contribution asserts >>*No any text says “A cell = A Trisector site”, One sector is represented by an hexagone, the cell radius is R, cell range is 2R, so, it clearly means “One cell = One sector” represented by an exagon.*<< referencing Recommendation ITU-R M.2101-0 and Report ITU-R M.2292.In fact, both references use confusingly the term ‘cell’ also for the sector. In this context, PT1 [STG(17)075\_LS from ECC PT1 to STG.docx, STG 56] supports STG’s definitions in relation with sector, cell and cell radius, which are reflected in the [Handbook section 7.5.1](https://ecocfl.cept.org/display/SH/7.5.1%2BSystem)*STG(19)036\_Single Tx interferer for 3-sector case.docx [STG 64]*This contribution requests the option of simulating only one TX (BS) of a tri-sector cell as interferer*STG(19)046\_OFDMA Reference Cell distance.docx [STG 64]*This contribution reports the error that the relative positioning does not take account of the reference cell (even it addresses the sector as cell).General comment regarding ‘reference cell’:In the opinion of the author of this, the reference cell is (up to now) used1. in general for the relative positioning (currently not implemented correctly)
2. for victims in order to distinguish between the impact on the overall network and a selected reference cell
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| **Description of the issue** |
| On a first step only the downlinks of the systems as interferer are investigated. Uplinks and victims will be discussed as a separate issue on the below ‘Proposal’.1. **currently implemented**
	1. OFDMA DLC:\Users\karl\AppData\Local\Temp\SNAGHTMLf499e3.PNGleft the single sector, right the reference cellthe yellow marked sectors are simulated as interferer
	2. CDMA DLC:\Users\karl\AppData\Local\Temp\SNAGHTMLf9b188.PNGthe same as for the above OFDMA DL
	3. IMT-2020 macro DLC:\Users\karl\AppData\Local\Temp\SNAGHTMLfdabcd.PNGall BSs (sectors) are simulated as interferer, independent on the setting ‘single sector’

the common mistake is that the relative positioning is referenced to the centre of the network, but should be referenced to the reference cellC:\Users\karl\AppData\Local\Temp\SNAGHTML102fb92.PNG1. **possible options regarding Single sector** (author’s view, including ‘less relevant’)C:\Users\karl\AppData\Local\Temp\SNAGHTML177914e.PNG*note that the coloured option should, according to ST-469, have been renamed to “Single omni site”. In the author’s opinion it should read rather “cell site” instead of “site” to be in line with the language of the handbook.*
	1. allow *Single sector* only if *Single cell* is selected, i.e. deactivate the check box if *Single cell* is not selected
	2. allow *Single sector* in general (not applicable to wrap-around)
		1. simulate only the selected sector as interferer and keep the other BSs for the network geometry (as currently implemented for OFDMA / CDMA)
		2. simulate all cells as interferer with the same sector activated (wouldn’t make sense)
		3. simulate all cells as tri-sector interferer, except on the selected cell just the selected sector (doesn’t make sense)
	3. in case *Single sector* is NOT selected
		1. simulate all BSs as interferer, independent on the selected reference cell, which is used just for the relative positioning
		2. simulate only the three sectors of the selected reference cell and keep the other BSs for the network geometry (probably less relevant)*NOTE: this option would require an additional selection parameter like “Only reference cell is interferer”*
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| **Proposal** |
| The author’s preferred options for DL as interferer are:1. allow *Single sector* in general (not applicable to wrap-around)
	1. simulate only the selected sector as interferer and keep the other BSs for the network geometry (as currently implemented for OFDMA / CDMA)
2. in case *Single sector* is NOT selected
	1. simulate all BSs as interferer, independent on the selected reference cell, which is used just for the relative positioning

Regarding the uplink as interferer it is proposed to apply the same as for the DL, i.e. consider only the UE which are connected to the selected sector if Single sector is selected.With respect to the cellular systems as victim, the preferred option is to keep the current implementation, i.e. not considering any “Single sector” option, even this may sound ‘less flexible’. If “Single sector” is selected on the System layout, take the cell site which the sector is part of as reference cell (currently implemented, but not shown on the Event Results).C:\Users\karl\AppData\Local\Temp\SNAGHTML34adcd8.PNG |
| **Suggested Priority (High, Medium or Low)** |
| Highest |