Table 1 Disposition of the comments from the 2019 St. Petersburg meeting and from the Chinese experts

Serial number	Comments	Disposition	Old version(before St.P.meeting)	New version((“WD 22639 _collocation_202000507.docx”)	Status
1.	(references) ISO references shall be used and CCSDS references can be added in brackets, e.g. “ISO 26900 (CCSDS.502.0-B)”. Clarify that the use of ISO 26900 is encouraged for orbital data exchange.	Agreed The Scope is modified according to the comments.	**4.4 Collocation Agreement** **4 Information exchange:** Detailing data to be regularly exchanged and clarify the information exchange mechanism, time, period and formats (use standard formats where possible).	4.4 Collocation Agreement **4 Information exchange:** Detailing data to be regularly exchanged and clarify the information exchange mechanism, time, period and formats (use standard formats where possible). Generally, the use of ORBIT DATA MESSAGES – ISO 26900 (CCSDS 502.0-B) is encouraged for orbital data exchange	
2.	(term satellite) The use of the term “spacecraft” should be preferred (instead of “satellite”).	Agreed The word “satellite ” has been all replaced by “spacecraft”.	/	/	

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3.	(comment JP-02) Collocation strategy should include the initial collocation strategy i.e. what is necessary to get into the collocation state (first phase). Deorbit strategy should be considered in the document (third phase): e.g. when deorbiting, there is a risk of collision damage. In addition, operators are changing orbit when transferring a spacecraft from one operator to the other into another constellation.	Agreed The Scope is modified according to the comments.	**3 Collocation Design Process** 2) The initial collocation strategy is designed according the considerations. Each collocation spacecraft operator selects and proposes the preferred collocation strategy.	**3 Collocation Design Process** **2)** The initial collocation strategy is designed according the considerations. Each collocation spacecraft operator selects and proposes the preferred collocation strategy. The collocation strategy shall include not only the strategy during mission period but also the initial phase strategy to move a satellite into position of collocation configuration and the deorbit strategy.	

<table>
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<tr><td>4.</td><td>(comments JP-03, UK-28): Annex D shows specific parameters. It should be clarified that the values in the table are samples and detailed values are defined by operators. The word “sample” should also be added in the title of Annex D (e.g. “Example of collocation evaluation strategy”) and a column “others” could be added in the table.</td><td>Agreed
The Scope is modified according to the comments.</td><td>Annex D
(Informative)
Sample of Collocation Evaluation strategy
Table 2 Form used in the strategy selection step
<table><tr><td>Separation strategy</td><td>…</td><td>..</td></tr><tr><td>A</td><td></td><td></td></tr><tr><td>B</td><td></td><td></td></tr><tr><td>C</td><td></td><td></td></tr><tr><td>…</td><td></td><td></td></tr></table></td><td>Annex D
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During the selection process, the selection principle listed in section 4.2.3.1 should always be considered. Annex D listed the common collocation cases as well as the commonly adopted collocation design results.</td><td></td></tr>
<tr><td rowspan="2">5.</td><td rowspan="2">(standard or TR): As already stated in the previous WG3 meetings, participants reminded that this document could be of use to new operators or operators who have not been involved in collocation scenarios before. A technical report, as opposed to a standard,</td><td rowspan="2">We still insist that this document should be a International Standard rather than a TR.
Our team has added some detailed content in the collocation agreement part.</td><td>3 Collocation Design Process
1) Delegations of different spacecraft operators with diversity needs hold an orbit safety consultation meeting. In the consultation meeting each operator should present the operation status, operational issue and then brings forward and confirms the considerations of collocation design.</td><td>3 Collocation Design Process
1) Delegations of different spacecraft operators with diversity needs hold an orbit safety consultation meeting. Commonly, the operator of spacecraft that have to collocate with other spacecraft that already located at the position shall bring forward the consultation meeting, negotiate and organize the meeting. In the consultation meeting each operator should present the operation status, operational issue and then brings forward and confirms the considerations of collocation design.</td><td></td></tr>
<tr><td>4.2.1 Fundamental principle of separation strategy
Assuming is the relative distance between any two collocated spacecraft , d_{min} is the required minimum safe separation distance, then the collocation strategy is to make the relative distance d qualify the demanded condition which is $d \geq d_{min}$.</td><td>4.2.1 Fundamental principle of separation strategy
Assuming is the relative distance between any two collocated spacecraft , d_{min} is the required minimum safe separation distance, then the collocation strategy is to make the relative distance d qualify the demanded condition which is $d \geq d_{min}$. Generally, the value of d_{min} is 10km based on the successful experience of international collocation cases.</td><td></td></tr>
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	makes more sense.		**4.4 Collocation Agreement** 4. Information exchange: Detailing data to be regularly exchanged and clarify the information exchange mechanism, time, period and formats (use standard formats where possible). Generally, the use of ORBIT DATA MESSAGES – ISO 26900 (CCSDS 502.0-B) is encouraged for orbital data exchange Orbital data content is as follows: Reference coordinate system of orbit data; Cartesian elements (x, y, z, vx, vy, vz); Keplerian osculated elements (Semi-major axis eccentricity inclination RAAN argument of perigee true anomaly); Orbit epoch (Year month day hour minute second(UTC)); Other information need to be exchanged. The data format shall comply with the following regulations: The naming of the data file shall be clarified as (SSS_yyyymmdd.xls), where SSS stands for spacecraft name and yyyymmdd stands for the date of the data; The file format shall be the same between all operators. The information shall be exchanged daily at a conventional period and after each maneuver of collocation spacecraft it shall be also exchanged in time (always two or three days) through the operator of maneuver spacecraft.	**4.4 Collocation Agreement** **4. Information exchange**: Detailing data to be regularly exchanged and clarify the information exchange mechanism, time, period and formats (use standard formats where possible). Generally, the use of ORBIT DATA MESSAGES – ISO 26900 (CCSDS 502.0-B) is encouraged for orbital data exchange (1) Orbital data information Orbital data content is as follows: Reference coordinate system of orbit data; Cartesian elements (x, y, z, vx, vy, vz); Keplerian osculated elements (Semi-major axis eccentricity inclination RAAN argument of perigee true anomaly); Orbit epoch (Year month day hour minute second(UTC)); Other information need to be exchanged. The data format shall comply with the following regulations: The naming of the data file shall be clarified as (SSS_yyyymmdd.xls), where SSS stands for spacecraft name and yyyymmdd stands for the date of the data; The file format shall be the same between all operators. The information shall be exchanged daily at a conventional period without maneuvers plan. (2) Emergency information: Any spacecraft operator shall notify to the other operators before any operator’s spacecraft will enter into the guard-band. The duration in the guard-band, time and date of entering-into/going-out the guard-band shall be informed in advance by e-mail basis, but they shall be notified immediately in the case of emergency. For example, If any side finds that the predicted separation distance of any two spacecraft is less than the minimum separation distance, the situation should be informed to the other sides and the relevant parties should discuss the possibility of avoidance maneuver. The essential control should be operated according to the agreed strategy. (3) Orbit manoeuvre information: Generally, the maneuver plan shall be given in advance and after each maneuver of collocation spacecraft it shall be also exchanged in time (always two or three days) through the operator of maneuver spacecraft. (4) De-orbit and replacement plan: Detailing the de-orbit and replacement plan. Generally, the de-orbit plan and orbit manoeuvre strategy shall be inform to the other operators in advance. The replacement plan shall be informed to the other operators at least one year ahead.	

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			4.4 Collocation Agreement **7 Contact Information**: Each operator involved in the collocation scenario shall nominate a contact point for negotiation and information exchange.	**4.4 Collocation Agreement** **7 Contact Information**: Each operator involved in the collocation scenario shall nominate a contact point for negotiation and information exchange. **8 Emergency contact information:** Each operator shall nominate an Emergency Contact point (24 hours) in case of emergency. The Emergency Contact point shall at least contain the telephone number and the fax number.	