

8 Compliance templates

8.1 Compliance template for services

	Service related minimum capabilities within the RIT/SRIT	Evaluator's comments
4.2.4.1.1	<p>Support of a wide range of services</p> <p>Does the proposal support a wide range of services?: If bullets 4.2.4.1.1.1 - 4.2.4.1.1.3 are marked as "yes" then 4.2.4.1.1 is a "yes". ✓ YES / NO</p>	<p><i>The proposed RIT supports a number of QoS classes (see Section 10.10 of [4] for more details) that are designed to enable a wide range of services and applications. These services include but are not limited to the following:</i></p> <ol style="list-style-type: none"> <i>1. Multicast and broadcast services (see Section 16 of [4] for more details) would allow support of IP-based multimedia applications such as real-time and non-real-time audio and video streaming, IP-TV, web-casts, etc.</i> <i>2. Location based services (see Section 12 of [4] for more details) would allow support of location based applications such as interactive maps and navigation applications, etc.</i> <i>3. Low one-way air-link transmission latency of less than 5 ms and short handoff interruption time of less than 20 ms would allow real-time applications such as interactive gaming, on-line collaborations, etc.</i> <i>4. High capacity VoIP service is enabled (see Section 10 and 11 of [4] for more details) through efficient DL/UL control channel design, advanced DL/UL MIMO techniques, persistent and group scheduling schemes, low user and control plane latencies.</i> <i>5. IP-based data services such as HTTP, email, web-browsing, file transfer are enabled through high spectral efficiency, low user and control plane latencies and flexible QoS classes (see Section 7.2.5 for more details)</i>

<p>4.2.4.1.1.1</p>	<p>Ability to support basic conversational service class</p> <p>Is the proposal able to support basic conversational service class?:</p> <p>✓ YES / NO</p>	<p><i>Given that basic conversational service* is typically characterized by per user throughputs of 20 kbps and latencies of less than 50 ms, using baseline antenna configuration and 10 MHz bandwidth, the proposed RIT with average user throughput of greater than 2.6 Mbps in the DL and 1.3 Mbps in the UL as well as one-way access latency of less than 5 ms does support this kind of service (see Sections 10 and 11 of [4] for more details)</i></p> <p><i>The handover interruption time for intra-Frequency Assignment (FA) is 5-10 ms and for inter-FA is 5 to 35 ms which both are significantly less the IMT-Advanced corresponding requirements which would enable a large number of service classes using the proposed RIT.</i></p> <p><i>The RIT minimum data rates for other supported bandwidths can be derived by scaling the above data rates by the bandwidth ratio.</i></p> <p><i>*see Section 3.2 of IST-2003-507581 WINNER D1.3 version 1.0, Final usage scenarios, at http://www.ist-winner.org/deliverables_older.html</i></p>
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4.2.4.1.1.2	<p>Support of rich conversational service class</p> <p>Is the proposal able to support rich conversational service class?:</p> <p>NO</p> <p>✓ YES</p>	<p><i>Given that rich conversational service* is typically characterized by per user throughputs of 5 Mbps and latencies of less than 20 ms, using baseline antenna configuration and 20 MHz bandwidth, the proposed RIT with average user throughput of greater than 5.2 Mbps in the DL and 2.6 Mbps in the UL as well as one-way access latency of less than 5 ms does support this kind of service (see Sections 10 and 11 of [4] for more details)</i></p> <p><i>The RIT minimum data rates for other supported bandwidths can be derived by scaling the above data rates by the bandwidth ratio.</i></p> <p><i>*see Section 3.2 of IST-2003-507581 WINNER D1.3 version 1.0, Final usage scenarios, at http://www.ist-winner.org/deliverables_older.html</i></p>
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4.2.4.1.1.3	<p>Support of conversational low delay service class</p> <p>Is the proposal able to support conversational low delay service class?</p> <p>NO</p> <p>✓ YES</p>	<p><i>Given that conversational low delay service* is typically characterized by per user throughputs of 150 kbps and latencies of less than 10 ms, using baseline antenna configuration and 10 MHz bandwidth, the proposed RIT with average user throughput of greater than 2.6 Mbps in the DL and 1.3 Mbps in the UL as well as one-way access latency of less than 5 ms does support this kind of service (see Sections 10 and 11 of [4] for more details)</i></p> <p><i>The RIT minimum data rates for other supported bandwidths can be derived by scaling the above data rates by the bandwidth ratio.</i></p> <p><i>*see Section 3.2 of IST-2003-507581 WINNER D1.3 version 1.0, Final usage scenarios, at http://www.ist-winner.org/deliverables_older.html</i></p>
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8.2 Compliance template for spectrum

	Spectrum capability requirements
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4.2.4.2.1

Spectrum bands

Is the proposal able to utilize at least one band identified for IMT?: ☒ YES / ☐ NO
Specify in which band(s) the candidate RIT or candidate SRIT can be deployed.

The proposed RIT supports deployment in all bands identified for IMT in ITU-R Radio Regulations. In addition, proposed RIT supports non-IMT bands below 6 GHz allocated to the fixed service and/or mobile service. (See below for more details on some of the band classes in which the proposed RIT can be deployed).

Table 8-1
Some of supported frequency bands

Band Class (MHz)	UL AMS Transmit Frequency (MHz)	DL AMS Receive Frequency Duplex Mode
1	2 300-2 400	2 300-2 400 TDD
2	2 305-2 320, 2 345-2 360	2 305-2 320, 2 345-2 360 TDD
	2 345-2 360	2 305-2 320 FDD
3	2 496-2 690	2 496-2 690 TDD
	2 496-2 572	2 614-2 690 FDD
4	3 300-3 400	3 300-3 400 TDD
5L	3 400-3 600	3 400-3 600 TDD
	3 400-3 500	3 500-3 600 FDD
5H	3 600-3 800	3 600-3 800 TDD
		6
	1 710-1 770	2 110-2 170 FDD
	1 920-1 980	2 110-2 170 FDD
	1 710-1 755	2 110-2 155 FDD
	1 710-1 785	1 805-1 880 FDD
	1 850-1 910	1 930-1 990 FDD
	1 710-1 785, 1 920-1 980	1 805-1 880, 2 110-2 170 FDD
	1 850-1 910, 1 710-1 770	1 930-1 990, 2 110-2 170 FDD
		7
	698-862	698-862 TDD

8.3 Compliance template for technical performance

Minimum technical requirements item (4.2.4.3.x), units, and Report ITU-R M.2134 section reference ⁽¹⁾	Category		Required value	Value ^{(2), (3)}	Requirement met?	Comments
	Test environment	Downlink or uplink				
4.2.4.3.1 Cell spectral efficiency (bit/s/Hz/cell) (4.1)	Indoor	Downlink	3	<i>TDD: 6.93 FDD: 6.87</i>	<input checked="" type="checkbox"/> Yes No	<i>The proposed RIT exceeds required values in all test environments. See Section 7.2.1 for details.</i>
		Uplink	2.25	<i>TDD: 5.99 FDD: 6.23</i>	<input checked="" type="checkbox"/> Yes No	
	Microcellular	Downlink	2.6	<i>TDD: 3.22 FDD: 3.27</i>	<input checked="" type="checkbox"/> Yes No	
		Uplink	1.8	<i>TDD: 2.58 FDD: 2.72</i>	<input checked="" type="checkbox"/> Yes No	
	Base coverage urban	Downlink	2.2	<i>TDD: 2.41 FDD: 2.41</i>	<input checked="" type="checkbox"/> Yes No	
		Uplink	1.4	<i>TDD: 2.57 FDD: 2.69</i>	<input checked="" type="checkbox"/> Yes No	
	High speed	Downlink	1.1	<i>TDD: 3.23 FDD: 3.15</i>	<input checked="" type="checkbox"/> Yes No	
		Uplink	0.7	<i>TDD: 2.66 FDD: 2.77</i>	<input checked="" type="checkbox"/> Yes No	
4.2.4.3.2 Peak spectral efficiency (bit/s/Hz) (4.2)	Not applicable	Downlink	15	<i>TDD: 16.96 FDD: 17.79</i>	<input checked="" type="checkbox"/> Yes No	<i>The proposed RIT exceeds required values. See Section 7.2.4 for details.</i>
		Uplink	6.75	<i>TDD: 9.22 FDD: 9.40</i>	<input checked="" type="checkbox"/> Yes No	
4.2.4.3.3 Bandwidth (4.3)	Not applicable	Up to and including (MHz)	40	<i>20 MHz with single carrier; Up to and including 100 MHz with multi-carrier</i>	<input checked="" type="checkbox"/> Yes No	<i>The proposed RIT supports multi-carrier operation that allows operation in any bandwidth as wide as 100 MHz by aggregating contiguous and/or non-contiguous RF carriers.</i>
		Scalability	Support of at least three band-width values ⁽⁴⁾	<i>5, 7, 8.75, 10, and 20 MHz with single carrier operation, Maximum 100 MHz with multi-carrier operation</i>	<input checked="" type="checkbox"/> Yes No	<i>The proposed RIT supports 5, 7, 8.75, 10 and 20 MHz with single carrier and also supports up to 100 MHz with multi-carrier operation</i>
Minimum technical requirements item (4.2.4.3.x), units, and Report ITU-R M.2134 section reference ⁽¹⁾	Category		Required value	Value ^{(2), (3)}	Requirement met?	Comments
	Test environment	Downlink or uplink				

Minimum technical requirements item	Category		Required value	Value ^{(2), (3)}	Requirement met?	Comments
4.2.4.3.4 Cell edge user spectral efficiency (bit/s/Hz) (4.4)	Indoor	Downlink	0.1	<i>TDD: 0.260</i> <i>FDD: 0.253</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>The proposed RIT exceeds required values in all test environments. See Section 7.2.1 for details.</i>
		Uplink	0.07	<i>TDD: 0.426</i> <i>FDD: 0.444</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Microcellular	Downlink	0.075	<i>TDD: 0.092</i> <i>FDD: 0.097</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
		Uplink	0.05	<i>TDD: 0.111</i> <i>FDD: 0.119</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Base coverage urban	Downlink	0.06	<i>TDD: 0.069</i> <i>FDD: 0.069</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
		Uplink	0.03	<i>TDD: 0.109</i> <i>FDD: 0.114</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	High speed	Downlink	0.04	<i>TDD: 0.093</i> <i>FDD: 0.091</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
		Uplink	0.015	<i>TDD: 0.119</i> <i>FDD: 0.124</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
4.2.4.3.5 Control plane latency (ms) (4.5.1)	Not applicable	Not applicable	Less than 100 ms	<i>< 81 ms</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Proposed RIT meets required value. See Section 7.2.5 for detailed information.</i>
4.2.4.3.6 User plane latency (ms) (4.5.2)	Not applicable	Not applicable	Less than 10 ms	<i>TDD: 7.32 ms</i> <i>FDD: 5.13 ms</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Proposed RIT meets required value. See Section 7.2.5 for detailed information.</i>
4.2.4.3.7 Mobility classes (4.6)	Indoor	Uplink	Stationary, pedestrian	<i>supported</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Proposed RIT supports required Mobility classes in all test environments.</i>
	Microcellular	Uplink	Stationary, pedestrian, vehicular up to 30 km/h	<i>supported</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Base coverage urban	Uplink	Stationary, pedestrian, vehicular	<i>supported</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	High speed	Uplink	High speed vehicular, vehicular	<i>supported</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Minimum technical requirements item	Category		Required value	Value ^{(2), (3)}	Requirement met?	Comments
	Indoor	Uplink				
4.2.4.3.8 Mobility Traffic channel link data rates (bit/s/Hz) (4.6)			1.0	<i>LoS TDD: 3.76</i> <i>NLoS TDD: 3.41</i> <i>LoS FDD: 3.86</i> <i>NLoS FDD: 3.56</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Proposed RIT exceeds required values in all test environments. See Section 7.2.3 for detailed information.</i>
	Microcellular	Uplink	0.75	<i>LoS TDD: 1.81</i> <i>NLoS TDD: 1.50</i> <i>LoS FDD: 1.72</i> <i>NLoS FDD: 1.51</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Base coverage urban	Uplink	0.55	<i>LoS TDD: 1.72</i> <i>NLoS TDD: 1.30</i> <i>LoS FDD: 1.63</i> <i>NLoS FDD: 1.34</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	High speed	Uplink	0.25	<i>LoS TDD: 1.70</i> <i>NLoS TDD: 1.23</i> <i>LoS FDD: 1.61</i> <i>NLoS FDD: 1.27</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Minimum technical requirements item (4.2.4.3.x), units, and Report ITU-R M.2134 section reference ⁽¹⁾	Category		Required value	Value ^{(2), (3)}	Requirement met?	Comments
	Test environment	Downlink or uplink				
4.2.4.3.9 Intra-frequency hand-over interruption time (ms) (4.7)	Not applicable	Not applicable	27.5	5-10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Proposed RIT meets required value. See Section 7.2.5 for detailed information.</i>
4.2.4.3.10 Inter-frequency handover interruption time within a spectrum band (ms) (4.7)	Not applicable	Not applicable	40	5-35	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Proposed RIT meets required value. See Section 7.2.5 for detailed information.</i>
4.2.4.3.11 Inter-frequency handover interruption time between spectrum bands (ms) (4.7)	Not applicable	Not applicable	60	5-35	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Proposed RIT meets required value. See Section 7.2.5 for detailed information.</i>

Minimum technical requirements item	Category		Required value	Value ^{(2), (3)}	Requirement met? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments
	Not applicable	Not applicable				
4.2.4.3.12 Inter-system handover (4.7)			Not applicable	<i>Not applicable</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>The proposed RIT supports inter-RAT handover to and from other IMT-2000 and IMT-Advanced technologies.</i> <i>See Section 10.3 of [4] for detailed information on inter-RAT handover in the proposed RIT.</i>
4.2.4.3.13 Number of supported VoIP users (active users/sector/MHz) (4.8)	Indoor	As defined in Report ITU-R M.2134	50	<i>TDD: 140 FDD: 139</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Reported numbers are minimum of UL and DL.</i> <i>Proposed RIT exceeds required values in all test environments.</i> <i>See Section 7.2.2 for detailed information.</i>
	Microcellular	As defined in Report ITU-R M.2134	40	<i>TDD: 82 FDD: 77</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Base coverage urban	As defined in Report ITU-R M.2134	40	<i>TDD: 74 FDD: 72</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	High speed	As defined in Report ITU-R M.2134	30	<i>TDD: 89 FDD: 90</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

⁽¹⁾ As defined in Report ITU-R M.2134.

⁽²⁾ According to the evaluation methodology specified in Report ITU-R M.2135.

⁽³⁾ Mandatory when “no” is checked, optional when “yes” is checked.

⁽⁴⁾ Refer to Report ITU-R M.2135, § 7.4.1.