

Project	<b>IEEE 802.20 Working Group on Mobile Broadband Wireless Access</b> < <a href="http://grouper.ieee.org/groups/802/20/">http://grouper.ieee.org/groups/802/20/</a> >	
Title	<b>MBTDD 625k-MC* (BEST-WINE) SYSTEM REQUIREMENTS COMPLIANT REPORT</b>	
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Re:	MBWA Call for Proposal	
Abstract	This document presents SYSTEM REQUIREMENTS COMPLIANCE of MBTDD 625k-MC mode in MBTDD proposal for IEEE 802. 20 MBWA	
Purpose	To discuss and adopt MBTDD proposal for Draft Specifications of IEEE802.20 MBWA	
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\* 625k-MC(625kHz625kiloHertz-spaced MultiCarrier) is Previously known as BEST-WINE: Broadband MobilE SpaTial Wireless InterNet AccEss



# MBTDD 625k-MC\* (BEST- WINE)

## SYSTEM REQUIREMENTS COMPLIANT REPORT

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1 **1 System Requirements Document Compliance Table**

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#	Requirement	SRD Section #	Requirement Type		Compliance Level	
			Shall	Should	Yes	Notes
1	PAR requirements	1.3	●		●	See table 2.
2	VoIP Services	2.1	●		●	C802.20-06/04 (Chapter 24)
3	Broadcast – Multicast services	2.2	●		●	C802.20-06/04 (Chapter 25)
4	non-line of sight outdoor to indoor scenarios and indoor coverage	3.1	●		●	C802.20-05/77r1 Chapter 5.6
5	layered architecture and separation of functionality between user, data and control	3.1	●		●	C802.20-06/04 (Chapter 14 / Chapter 22 )
6	Spectral efficiency – DL @ 3 km/hr: 2.0b/s/Hz/sector	4.1.1	●		●	C802.20-05/77r1 Chapter 8
7	Spectral efficiency – DL @ 120km/hr: 1.5b/s/Hz/sector	4.1.1	●		●	C802.20-05/77 r1 Chapter 8
8	Spectral efficiency – UL @ 3km/hr: 1.0b/s/Hz/sector	4.1.1	●		●	C802.20-05/77 r1 Chapter 8
9	Spectral efficiency – UL @ 120km/hr: .75b/s/Hz/sector	4.1.1	●		●	C802.20-05/77 r1 Chapter 8
10	Block assignment support	4.1.2	●		●	1.25,2.5,5,10MHz C802.20-06/04 (Chapter 15 & 22)

#	Requirement	SRD Section #	Requirement Type		Compliance Level	
			Shall	Should	Yes	Notes
11	Duplexing Scheme	4.1.3	●		●	<i>TDD scheme is supported.</i> C802.20-06/04 (Section 16.2)
12	Support for Half Duplex FDD subscriber station.	4.1.3		○		-
13	Support for different mobility rates	4.1.4	●		●	<i>Mobility Rates Upto 250 Kmph</i> C802.20-05/77r1 Chapter 7 (C802.20-06/01-250km)
14	Aggregated data rate consistent with item 6	4.1.5	●		●	C802.20-05/77r1 Chapter 8
15	Aggregated data rate consistent with item 7	4.1.5	●		●	C802.20-05/77 r1 Chapter 8
16	Aggregated data rate consistent with item 8	4.1.5	●		●	C802.20-05/77 r1 Chapter 8
17	Aggregated data rate consistent with item 9	4.1.5	●		●	C802.20-05/77 r1 Chapter 8
18	Peak User Data Rate (DL) of 4.5 Mbps in 1.25 MHz	4.16	●		●	C802.20-06/04 (Section 17.1)  <i>5.97Mbps/user with 4 carriers</i>
19	Peak User Data Rate (UL) of 2.25 Mbps in 1.25 MHz	4.16	●		●	C802.20-06/04 (Section 17.1)  <i>2.28Mbps/user with 4 carriers</i>
20	Peak User Data Rate (DL) of 18 Mbps in 5.0 MHz	4.16	●		●	C802.20-06/04 (Section 17.1)  23Mbps/user

#	Requirement	SRD Section #	Requirement Type		Compliance Level	
			Shall	Should	Yes	Notes
						<i>with 16 carriers</i>
21	Peak User Data Rate (UL) of 9 Mbps in 5.0 MHz	4.16	●		●	C802.20-06/04 (Section 17.1)  9.1Mbps/user <i>with 16 carriers</i>
22	MAC layer to control >100 simultaneous active sessions per sector. (See section for conditions.)	4.1.7		○	●	C802.20-06/04 Chapter 16  $4(SDMA) \times 3(Timeslot) \times 4(Carrier) \times 4(Frame) = 192$ users within 20ms.
23	QoS support per requirements in section 4.1.8	4.1.8	●		●	C802.20-06/04 (Chapter 24)
24	Support the configuration of a flexible set variety of traffic classes (see section 4.1.8.1)	4.1.8.1	●		●	C802.20-06/04 (Chapter 24)
25	MAC/PHY features to support multi-antenna capabilities at the BS	4.1.9	●		●	C802.20-05/77r1 (Section 5.5)  C802.20-06/04 (Chapter 19)
26	Base station antenna diversity	4.1.10		○	●	C802.20-05/77r1 (Section 6.2) C802.20-06/04 (Chapter 19)
27	Support coverage enhancing technologies	4.1.11	●		●	C802.20-06/04 (Section 16.2)
28	BS authentication	4.1.12	●		●	C802.20-06/04 (Chapter 26)
29	MT authentication	4.1.12	●		●	C802.20-06/04 (Chapter 26)

#	Requirement	SRD Section #	Requirement Type		Compliance Level	
			Shall	Should	Yes	Notes
	authentication					(Chapter 26)
30	Network and mobile terminal perform mutual entity authentication and session key agreement protocol.	4.1.12.1	●		●	C802.20-06/04 (Chapter 26)
31	Privacy and message integrity methods	4.1.12.2	●		●	C802.20-06/04 (Chapter 26)
32	Support for encryption across the air interface.	4.1.12.2	●		●	C802.20-06/04 (Chapter 26)
33	Protection from unauthorized disclosure of the device permanent identity to passive attackers.	4.1.12.3	●		●	C802.20-06/04 (Chapter 26)
34	Protection against Denial of Service (DOS) attacks	4.1.12.4	●		●	Provides encryption and authentication of all messages and data.  C802.20-06/04 (Chapter 26)
35	AES Support	4.1.12.5	●		●	C802.20-06/04 (Section 26.4)
36	automatic selection of optimized user data rates that are consistent with the RF environment constraints and application	4.2.1	●		●	C802.20-06/04 (Chapter 22)

#	Requirement	SRD Section #	Requirement Type		Compliance Level	
			Shall	Should	Yes	Notes
	requirements					
37	Graceful reduction or increase of user data rates, on the downlink and uplink	4.2.1	●		●	C802.20-06/04 (Chapter 22)
38	Link adaptation	4.2.1	●		●	C802.20-06/04 (Chapter 22)
39	BS and MS transmit power control mechanisms and exchange control and monitoring information	4.2.1		○	●	C802.20-06/04 (Chapter 22)
40	Application in dense urban, urban, suburban, rural, outdoor-indoor, pedestrian, and vehicular environments and the relevant channel models.	4.2.2	●		●	C802.20-05/77r1 (Chapter 7)
41	Physical layer Measurements - BS	4.2.4	●		●	C802.20-06/04 (Chapter 28)
42	Physical layer Measurements - MS	4.2.4	●		●	C802.20-06/04 (Chapter 28)
43	Design extensible to wider channels.	4.3	●		●	C802.20-06/04 (Section 14.6)
44	Mechanisms for quality of service (QoS) control and monitoring.	4.4.1	●		●	C802.20-06/04 (Chapter 24)

#	Requirement	SRD Section #	Requirement Type		Compliance Level	
			Shall	Should	Yes	Notes
45	Interfaces and procedures that facilitate the configuration, negotiation, and enforcement of QoS policies	4.4.1	•		•	C802.20-06/04 (Chapter 24)
46	Support both IPv4 and IPv6.	4.5	•		•	C802.20/05/75r1 (Section 7.2.4.4)
47	Handoff methods	4.5.1	•		•	C802.20-06/04 (Chapter 22)
48	Allow the use of either MobileIPv4, MobileIPv6 or of SimpleIP	4.5.1.1	•		•	C802.20/05/75r1 (Section 7.2.4.4)
49	Mechanism to enable the provisioning and collection of metrics.	4.5.2	•		•	C802.20-06/04 (Chapter 28)
50	Not preclude proprietary scheduling algorithms, so long as the standard control messages, data formats, and system constraints are observed.	4.6	•		•	C802.20-06/04 (Chapter 28)
51	Power conservation features to improve battery life for idle mobile terminals.	4.7	•		•	C802.20-06/04 (Chapter 27)



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**Table 2 PAR Requirements Table**

<b>Characteristic</b>	<b>Target Value</b>	<b>Reference</b>
<i>Mobility</i>	<i>Vehicular mobility classes up to 250 km/hr (as defined in ITU-R M.1034-1)</i>	C802.20-05/77r1 Chapter. 7 Report 2-250km
<i>Sustained spectral efficiency</i>	<i>&gt; 1 b/s/Hz/cell</i>	C802.20-05/77r1 Chapter. 8
<i>Peak user data rate (Downlink (DL))</i>	<i>&gt; 1 Mbps*</i>	Satisfies requirement. 1.49Mbps.(625KHz BW) C802.20-06/04 (Section 17.1)
<i>Peak user data rate (Uplink (UL))</i>	<i>&gt; 300 kbps*</i>	Satisfies requirement. 571kbps. (625KHz BW) C802.20-06/04 (Section 17.1)
<i>Peak aggregate data rate per cell (DL)</i>	<i>&gt; 4 Mbps*</i>	Satisfies requirement. 23.88Mbps. (2.5MHz BW[TDD] with 4 spatial channels) C802.20-06/04 (Section 17.1)
<i>Peak aggregate data rate per cell (UL)</i>	<i>&gt; 800 kbps*</i>	Satisfies requirement. 9.12Mbps. (2.5MHz BW [TDD] with 4 spatial channels) C802.20-06/04 (Section 17.1)
<i>Airlink MAC frame RTT</i>	<i>&lt; 10 ms</i>	Satisfies requirement. (Approximately 5msec) C802.20-06/04 (Chapter 16)
<i>Bandwidth</i>	<i>e.g., 1.25 MHz, 5 MHz</i>	Support different bandwidths from 1.25MHz to 10MHz C802.20-06/04 (Chapter 15 & 22)
<i>Cell Sizes</i>	<i>Appropriate for ubiquitous metropolitan area networks and capable of reusing existing infrastructure.</i>	Satisfies requirement. Refer to Linkbudget tables. C802.20-06/04 (Section5.6)
<i>Spectrum (Maximum operating frequency)</i>	<i>&lt; 3.5 GHz</i>	Satisfies requirement.
<i>Spectrum (Frequency Arrangements)</i>	<i>Supports FDD (Frequency Division Duplexing) and TDD (Time Division Duplexing) frequency arrangements</i>	Supports TDD C802.20-06/04 (Section 16.2)
<i>Spectrum Allocations</i>	<i>Licensed spectrum allocated to the mobile service</i>	Satisfies requirement.
<i>Security Support</i>	<i>AES (Advanced Encryption Standard)</i>	C802.20-06/04 (Chapter 26)

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