TSG-T meeting#8 TSG T#8(00)xxx
Dusseldorf, Germany, 21-23rd June, 2000

To: 3GPP TSG T

CC: 3GPP TSG SA, TSG T WG1, TSG T WG1 SIG, TSG T WG1 RF

Source: ARIB

Subject: Reply to the liaison statement on the distribution of a proposal for prioritization of the elaboration of conformance test cases for 3G terminals.

Document for: Information

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ARIB would like to thank TSG T for the Liaison Statement (TP-000035), and hereby provides the reply and some further information about the technical regulatory requirements for IMT-2000 terminals in Japan.

ARIB has reviewed the list of tests provided in the Liaison Statement, and a reply can be found in Annex 1. Note that ARIB has prepared the reply only from the Japanese technical regulatory requirement perspective and has not taken any view on the regulatory requirements in other countries and regions. Thus only the items which are relevant for the Japanese technical regulatory requirements are marked with priority “1”. Please note also that as the required tests for verifying the compliance against the Japanese technical regulatory requirements are not yet finalized, the response provide here reflects the current understanding. Furthermore it should be noted that for some items, even though they are marked as relevant for Japanese technical regulatory requirements, it is possible that only part of the item (i.e. test results) is relevant, as the scope of the Japanese technical regulatory requirement may be different from the scope of the 3GPP core specification.

In Japan the technical regulatory requirements for IMT-2000 terminals are based on Radio Law (radio related items) and Telecommunications Business Law (network protective items) and on related ordinances. The technical regulatory requirements for Radio Law and ordinances were defined by the Telecommunication Technology Council, an advisory body for the Ministry of Posts and Telecommunications, and completed in September 1999. Subsequently the Ministry prepared the necessary legislation and ordinances, which were approved in February and March this year, and are currently already effective. The technical regulatory requirements for Telecommunication Business Law and ordinances were defined by the same advisory body, and completed in March this year. Following this, Ministry of Posts and Telecommunications will start legislating work for Telecommunication Business Law and ordinance, which are expected to be approved during autumn this year. Annex 2 lists the technical regulatory requirements from both Radio Law and Telecommunications Business Law, and related ordinances.

Regarding the detailed test methods, in earlier systems (e.g. 2nd generation) the responsible Designated Certification Bodies have prepared a set of example test methods for verifying the compliance against the technical regulatory requirements in Japan. For Radio Law related requirements, Telecommunication Engineering Center (TELEC) has already obtained the Designated Certification Body status from the Ministry of Posts and Telecommunications, and is currently progressing the definition work for the set of WCDMA test method examples. It is also expected that for Telecommunication Business Law related requirements, Japan

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Approvals Institute for Telecommunication Equipment (JATE) will soon obtain the Designated Certification Body status and start to progress the work for the definition work for the set of test method examples. In order to avoid unnecessary deviation between the test methods of 3GPP and Japan, ARIB is planning provide more information regarding the work status and test methods in Japan as soon as such information becomes public.

ARIB would also like to point out that list of test provided in the Liaison Statement from TSG T does not cover all the Japanese technical regulatory requirements. Below is a list of requirements, which do not seem to have a test case in the original list. Due to time schedule reasons, it is quite possible that for these requirements the test method is defined first in Japan, and then later provided to 3GPP for information.

1. Radio Law and ordinances
- Frequency Band
- TX-RX frequency separation
- Channel Raster

Note: Normally the above items are implicitly included in some other tests, so it is quite possible that fore these requirements a separate test case is not needed.

2. Telecommunication Business Law and ordinances
- Time restriction for automatic response during the call origination (Article 18-1)
- Voice leakage attenuation level (Article 31)
- Restricted ringer tone (Article 5)
- Insulation resistance etc. (Article 6)
- Radio equipment within the terminal (Article 9)

Furthermore ARIB would like to note that even though the specification TS34.123-1 version 1.0.1 does contain MAC related test cases, these test cases were not found in the list provided in the original Liaison Letter. Also some relevant tests from TS 34.121 were missing. From these related tests the below tests seem to be suitable for verifying the compliance against the Japanese regulatory requirements.

TS	Test	Remarks
34.121	UE transmit timing Out of synchronization handling of output power	

34.123-1	- Permission to access the network
	- RACH/FACH procedures
	  - selection and control of Power Level
	  - correct application of Dynamic Persistence
	  - correct selection of RACH parameters	

Finally, ARIB would like to request 3GPP that the requirements provided in Annex 2 are recognized as regulatory related requirements and included in the TR34.910 “Identification of Test requirements for regulatory purposes in different regions/countries”.

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Annex 1: Proposal for prioritization of the elaboration of conformance test cases for 3G terminals

Please Fill out:

Standards Organisation (SDO) : (or relevant organisation)	Association of Radio Industries and Businesses
Contact details:	
Name of contact	
Function	
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Any other related comments:

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	Test area	Priority
	UTRA – FDD (TS34.121)	
	Transmitter Characteristics (Chapter 5)	
	5.2 Maximum output power An excess maximum output power has the possibility to interfere to other channels or other systems. A small maximum output power decreases the coverage area.	1
	5.3 Frequency Stability An excess error of the carrier frequency increases the transmission errors in the up link own channel. The UE modulated carrier frequency shall be accurate to within ±0.x ppm compared to carrier frequency received from the BS.	1
	5.4 Output Power Dynamics in the Uplink. Power control is used to limit the interference level. An excess error of the loop power control decreases the system capacity.	
	5.4.1 Open loop power control in the uplink. The ability of the UE transmitter to set its output power to a specific value.	
	5.4.2 Inner loop power control in the uplink The ability of the UE transmitter to adjust its output power in accordance with the 'power step control' command received in the downlink.	
	5.4.3 Minimum Output Power The minimum controlled output power of the UE is when the power control setting is set to a minimum value. This is when both the inner loop and open loop power control indicate a minimum transmit output power is required. An excess minimum output power increases the interference to other channels, and decreases the system capacity.	1
	5.5 Transmit ON/OFF Power	
	5.5.1 Transmit OFF Power This parameter is defined as the maximum output transmit power within the channel bandwidth when the transmitter is OFF (between uplink DTX modes). Excess transmit OFF power increases the interference to other channels, and decreases the system capacity.	1

		5.5.2 Transmit ON/OFF Time mask The time mask for transmit ON/OFF defines the ramping time allowed for the UE between transmit OFF power and transmit ON power. Possible ON/OFF scenarios are RACH or uplink slotted mode. Excess errors of transmit ON/OFF response increases the interference to other channels, or increases transmission errors in the up link own channel.	
	5.6 Change of TFC A change of TFC (Transport Format Combination) in uplink means that the power in the uplink varies according to the change in data rate. DTX, where the DPCH is turned off, is a special case of variable data, which is used to minimise the interference between UE(s) by reducing the UE transmit power when voice, user or control information is not present.		
	5.7 Power setting in uplink compressed mode A change of output power is required during uplink compressed frames since the transmission of data is performed in a shorter interval. The ratio of the amplitude between the DPDCH codes and the DPCCH code will also vary. The power step due to compressed mode shall be calculated in the UE so that the energy transmitted on the pilot bits during each transmitted slot shall follow the inner loop power control. Thereby the power step during the transmitted part of a compressed frame shall be such that the power on the DPCCH follows the inner loop power control with an additional power offset during a compressed frame of Npilot,N / Npilot,C where Npilot,C is the number of pilot bits per slot when in compressed mode, and Npilot,N is the number of pilot bits per slot in normal mode.		
	5.8 Occupied Bandwidth (OBW) Occupied bandwidth is a measure of the bandwidth containing 99% of the total integrated power of the transmitted spectrum, centred on the assigned channel frequency. Excess occupied channel bandwidth increases the interference to other channels or to other systems.		1
	5.9 Spectrum emission mask The spectrum emission mask of the UE applies to frequencies, which are between 2.5 MHz and 12.5 MHz away from the UE centre carrier frequency. Excess emission increases the interference to other channels or to other systems.		
	5.10 Adjacent Channel Leakage Power Ratio (ACLR) ACLR due to modulation is the ratio of the transmitted power to the power measured after a receiver filter in the adjacent channel(s) in the continuous transmission mode. Excess ACLR increase the interference to other channels or to other systems.		1
	5.11 Spurious Emissions Spurious emissions are emissions which are caused by unwanted transmitter effects such as harmonics emission, parasitic emission, intermodulation products and frequency conversion products, but exclude out of band		1

	emissions. Excess spurious emissions increase the interference to other systems.	
	5.12 Transmit Intermodulation The transmit intermodulation performance is a measure of the capability of the transmitter to inhibit the generation of signals in its non linear elements caused by presence of the wanted signal and an interfering signal reaching the transmitter via the antenna. An excess transmit intermodulation increases transmission errors in the up link own channel when other transmitter exists nearby.	
	5.13 Transmit Modulation	
	5.13.1 Modulation Accuracy The modulation accuracy is a measure of the difference between the measured waveform and the theoretical modulated waveform (the error vector). Excess modulation error increases transmission errors in the up link own channel.	1
	5.13.2 Peak code domain error The code domain error is computed by projecting the error vector power onto the code domain at the maximum spreading factor. The error vector for each power code is defined as the ratio to the mean power of the reference waveform expressed in dB. The requirements and this test apply only to the UE in which the multi-code transmission is provided. Excess peak code domain error increases transmission errors in the up link own channel.	
	Receiver Characteristics (Chapter-6)	
	6.2 Reference Sensitivity Level The reference sensitivity is the minimum receiver input power measured at the antenna port at which the Bit Error Ratio (BER) does not exceed a specific value. The lack of the reception sensitivity decreases the coverage area at the far side from BS.	1
	6.3 Maximum Input Level This is defined as the maximum receiver input power at the UE antenna port, which does not degrade the specified BER performance. The lack of the maximum input level decreases the coverage area at the near side from BS.	
	6.4 Adjacent Channel Selectivity (ACS) Adjacent Channel Selectivity (ACS) is a measure of a receiver's ability to receive a W-CDMA signal at its assigned channel frequency in the presence of an adjacent channel signal. The lack of the ACS decreases the coverage area when other transmitter exists in the adjacent channel.	1
	6.5 Blocking Characteristics The blocking characteristic is a measure of the receiver's ability to receive a wanted signal in the presence of an unwanted interfere on frequencies other than those of the spurious response or the adjacent channels. The blocking performance shall apply at all frequencies except those at which a spurious response occur. The lack of the blocking ability decreases the coverage area	

	when other transmitter exists (except in the adjacent channels and spurious response).	
	6.6 Spurious Response Spurious response is a measure of the receiver's ability to receive a wanted signal without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency at which a response is obtained i.e. for which the blocking limit is not met. The lack of the spurious response ability decreases the coverage area when other unwanted interfering signal exists at any other frequency.	1
	6.7 Intermodulation Characteristics Third and higher order mixing of the two interfering RF signals can produce an interfering signal in the band of the desired channel. Intermodulation response rejection is a measure of the capability of the receiver to receiver a wanted signal on its assigned channel frequency in the presence of two or more interfering signals which have a specific frequency relationship to the wanted signal. The lack of the intermodulation response rejection ability decreases the coverage area when two or more interfering signals, which have a specific frequency relationship to the wanted signal, exist.	1
	6.8 Spurious Emissions The spurious emissions power is the power of emissions generated or amplified in a receiver that appear at the UE antenna connector. Excess spurious emissions increase the interference to other systems.	1
	Performance requirements (Chapter-7)	
	7.2 Demodulation in Static Propagation conditions The receive characteristic of the Dedicated Channel (DCH) in the static environment is determined by the block error ratio (BLER). BLER is specified for each individual data rate of the DCH. Excess BLER decreases the quality of the channel and decreases thus the coverage area.	
	7.2.1 Demodulation of Dedicated Channel (DCH)	
	7.3 Demodulation of DCH in Multi-path Fading Propagation conditions	
	7.3.1 Single Link Performance	
	7.4 Demodulation of DCH in Moving Propagation conditions	
	7.4.1 Single Link Performance	
	7.5 Demodulation of DCH in Birth-Death Propagation conditions	
	7.5.1 Single Link Performance	
	7.6 Demodulation of DCH in Base Station Transmit diversity modes	
	7.6.1 Demodulation of DCH in open-loop transmit diversity mode To verify that UE reliably demodulates the DPCH of the BS while open loop transmit diversity is enabled during the connection.	

		7.6.2 Demodulation of DCH in closed-loop transmit diversity mode To verify that UE reliably demodulates the DPCH of the BS while closed loop transmit diversity is enabled during the connection.	
		7.6.3 Demodulation of DCH in Site Selection Diversity Transmission mode The bit error characteristics of UE receiver are determined in Site Selection Diversity Transmission (SSDT) mode. To verify that UE reliably demodulates the DPCH of the selected BS while site selection diversity is enabled during soft handover.	
	7.7 Demodulation in Handover conditions(Inter-Cell Soft Handover Performance) The bit error ratio characteristics of UE is determined during an inter-cell soft handover. During the soft handover a UE receives signals from different Base Stations. A UE has to be able to demodulate two PCCPCH channels and to combine the energy of DCH channels		
	7.8 Inner loop power control in downlink Performance of the inner loop power control in downlink is determined by the Block Error Ratio (BLER). The purpose of the test is to verify that the UE power control is performing correctly and the average power required from BS is below defined value.		
	7.9 Outer loop power control in downlink Outer loop power control in the downlink is the ability of the UE receiver to maintain the suitable target for the inner loop closed loop PC according to the required link quality set by the network.		
	7.10 Downlink compressed mode (Single link performance) Downlink compressed mode is used to create gaps in the downlink transmission, to allow the UE to make measurements on other frequencies (determined by the BLER, average power in the downlink and the maximum power in the uplink).		

	Test Area	Priority
	Signalling - Protocol	
	Idle Mode operations (no call set up)	

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		In a pure 3GPP environment				
			PLMN selection and reselection			
				UE indication of available PLMNs to user		
				UE will transmit only if BSS is present		
				PLMN selection in manual mode		
			Radio access mode selection and reselection (FDD/TDD) on network request			
			Cell selection and reselection			
				Cell selection		
				Cell reselection		
				Priority of cells		
				Emergency calls		
				Immediate cell evaluation and cell reselection due to UE rejection “LA not allowed” (to verify that the UE manage the list of forbidden PLMNs)		
				Immediate cell evaluation and cell reselection on downlink signalling failure		
				Cell selection if no suitable cell is found in <time criteria> (after performing cell selection algorithm ‘acceptable cell’ should be camped on)		
				Cell reselection due to UE rejection “Roaming not allowed in this LA”		
				Cell selection on release of DCCH and DTCH		
				Immediate cell evaluation prior to RACH transmission		
			Location registration			
		Multi-mode environment (2G/3G case)				
			PLMN selection and reselection			
			Radio access mode selection and reselection			
			Cell selection and reselection			
				Cell reselection; Inter Radio Access System; 3G to GSM		
				Cell reselection; Inter Radio Access System; GSM to 3G		
			Location registration			
	IMEI Security					
	Coding of the Bearer Capability information element					

	Test Area	Priority
	Tests of the layer 2 signalling functions	
	Transparent mode / Segmentation and reassembly	
	Unacknowledged mode / Segmentation and re-assembly	
	Acknowledged mode	
	Segmentation and reassembly	
	Concatenation	
	Correct use of Sequence Numbering on the Uplink	

	Correct use of Sequence Numbering on the Downlink	
	Control of Transmit Window	
	Control of Receive Window	
	Flow Control	
	Error Correction	
	SDU discard	
	Protocol error detection and recovery	
	Acknowledgements are sent when requested	
	Retransmission takes place when requested	
	The Estimated PDU counter operates correctly	
	Header compression	
	Triggering of Polling	
	Testing of layer 3 functions	
	Initial tests	
	Channel request	
	IMUI detach and IMUI attach	
	Sequenced MM / CM message transfer	
	Establishment cause	
	Test of MS functions in idle mode	
	Initial conditions	
	MS indication of available PLMNs	
	MS will send only if BSS is "on air"	
	Manual mode of PLMN selection	
	Lower layer failures in layer 3 testing	
	Layer 1 reception failures	
	Data link layer failures	
	Handling of unknown, unforeseen, and erroneous protocol data, and of parallel transactions	
	Radio Resource Control(RRC)	
	RRC Connection Management Procedure	
	Paging	
	RRC Connection Establishment	
	RRC Connection Release	
	RRC Connection Re-establishment	
	UE Capability	
	Security mode control	
	Radio Bearer control procedure	
	Radio Bearer Establishment	
	Radio Bearer Reconfiguration	
	Radio Bearer Release	
	Transport channel reconfiguration	
	Transport format combination control	
	Physical channel reconfiguration	

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	Physical Shared Channel Allocation[TDD only]	
	PUSCH capacity request[TDD only]	
	Downlink power control	
	RRC connection Mobility procedures	
	Cell update	
	URA update	
	RNTI reallocation	
	Active set update in soft handover	1
	Hard handover	1
	Inter-system handover to UTRAN	
	Inter-system handover from UTRAN	
	Inter-system cell reselection to UTRAN	
	Inter-system cell reselection from UTRAN	
	Measurement procedures	
	Measurement control	1
	Elementary Procedures of Mobility Management (MM)	
	TMSI reallocation	
	Authentication	
	Identification	
	Location updating	
	Location updating / accepted	1
	Location updating / rejected	
	Location updating / abnormal cases	
	Location updating / release / expiry of T3240	
	Location Updating / periodic	
	Location updating / interworking of attach and periodic	
	MM connection	
	MM connection / establishment with cipher	
	MM connection / establishment without cipher	
	MM connection / establishment rejected	
	MM connection / establishment rejected cause 4	
	MM connection / expiry T3230	
	MM connection / abortion by the network	
	MM connection / follow-on request pending	
	Default contents of messages	
	Circuit Switched Call Control (CC)	
	Circuit switched Call Control (CC) state machine verification	
	Establishment of an outgoing call	
	Outgoing call / U0 null state	
	Outgoing call / U0.1 MM connection pending	1
	Outgoing call / U1 call initiated	
	Outgoing call / U3 MS originating call proceeding	1
	Outgoing call / U4 call delivered	
	U10 call active	1

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	U11 disconnect request	
	U12 disconnect indication	
	Outgoing call / U19 release request	
	Establishment of an incoming call / Initial conditions	
	Incoming call / U0 null state	
	Incoming call / U6 call present	
	Incoming call / U9 mobile terminating call confirmed	1
	Incoming call / U7 call received	1
	Incoming call / U8 connect request	
	In call functions	
	In-call functions / DTMF information transfer	
	In-call functions / user notification	
	In-call functions / channel changes	
	In-call functions / MS terminated in-call modification	
	In-call functions / MS originated in-call modification	
	Call Re-establishment	
	Call Re-establishment/call present, re-establishment allowed	
	Call Re-establishment/call present, re-establishment not allowed	
	Call Re-establishment/call under establishment, transmission stopped	
	User to user signalling	
	Session Management Procedures	
	PDP context activation	
	Initiated by the MS	
	Attach initiated by context activation/QoS Offered by Network is the QoS Requested	
	QoS offered by the network is a lower QoS	
	PDP context activation requested by the network, successful and unsuccessful	
	Abnormal Cases	
	T3380 Expiry	
	Collision of MS initiated and network requested PDP context activation	
	PDP context modification procedure	
	PDP context modification	
	PDP context deactivation procedure	
	PDP context deactivation initiated by the MS	
	PDP context deactivation initiated by the network	
	Abnormal cases	
	T3390 Expiry	
	Collision of MS and network initiated PDP context deactivation requests	
	Unknown or Unforeseen Transaction Identifier/Non-semantical Mandatory Information Element Errors	
	Error cases	
	Structured procedures / emergency call	
	Structured procedures / emergency call / idle updated	
	Structured procedures / emergency call / idle, no IMSI	
	Speech Coded Rate signalling	

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	AMR signalling/ test of the channel mode modify procedure	
	AMR signalling/ tests of handover	
	Testing of the SIM/ME interface	
	Test of autocalling restrictions	
	Constraining the access to a single number	1
	Constraining the access to a single number (why the same test twice?)	
	Behaviour of the MS when its list of blacklisted numbers is full	
	Testing of bearer services	
	Testing of transparent data services	
	Verification of synchronisation	
	Filtering of channel control information for transparent BCs	
	Correct Terminal Compatibility Decision	
	Negotiation between TS 61 and TS 62: Mobile Terminated call.	
	Data Rate Adaptation for Synchronous Transparent Bearer Capabilities	
	Network Independent Clocking	
	Asynchronous Transparent Bearer Capabilities	
	Interchange circuit mapping for transparent bearer capabilities	
	Testing of non transparent data services	
	Initialization	
	Data transfer	
	Negotiation of the RLC parameters	
	Facsimile tests for the transparent network support	
	General	
	Mobile originated call	
	Mobile terminated call	
	Speech teleservices	
	Test of supplementary services	
	Number identification supplementary services	
	Call offering supplementary services	
	Call forwarding supplementary services	
	Call transfer and mobile access hunting supplementary services	
	Call completion supplementary services	
	Multi-party supplementary services	
	Community of interest supplementary services	
	Charging supplementary services	
	Advice of Charge Charging	
	Charge Storage	
	Advice of Charge Information	
	Default contents of messages	
	Additional information transfer supplementary services	
	Call restriction supplementary services	
	Registration of a password	
	Erasure	

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	Activation	
	Deactivation	
	Invocation	
	Interrogation	
	Normal operation	
	Handling of undefined (future) supplementary services	
	Mobile station initiated Unstructured supplementary service data operation	
	Network initiated unstructured supplementary service operations	
	MMI input for USSD	
	Specific message contents and ASN.1 codings	
	Testing of speech transcoding functions	
	Mobile station features	
	Entry and display of called number	
	Indication of call progress signals	
	Ringing tone	
	Busy tone	
	Congestion tone	
	Authentication failure tone	
	Number unobtainable tone	
	Call dropped tone	
	Network selection / indication	
	Invalid and blocked PIN indicators	
	Service indicator	
	Subscription identity management	
	Barring of outgoing calls	
	Prevention of unauthorized calls	
	Short message service (SMS)	
	General	
	Short message service point to point	
	SMS mobile terminated	
	SMS mobile originated	
	Test of memory full condition and memory available notification:	
	Test of the status report capabilities and of SMS-COMMAND:	
	Test of message class 0 to 3	
	Test of short message type 0	
	Test of the replace mechanism for SM type 1-7	
	Test of the reply path scheme	
	Multiple SMS mobile originated	
	Short message service cell broadcast	
	Default message contents:	
	Low battery voltage detection	

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Annex 2: Further information about the Japanese technical regulatory requirements for IMT-2000 terminals

1. Technical Requirements for DS-CDMA FDD based on Japan Radio Law

Japanese Ministry of Posts and Telecommunications issued new legislation for Radio Law and ordinance regarding technical requirements for the IMT-2000 radio facilities, including WCDMA-FDD terminals, in February and March, 2000. This new legislation for Radio Law and ordinance is already effective.

The technical requirements for DS-CDMA are based on ITU-R key parameters and 3GPP specifications. Following items are included in the requirements for terminals.

Relevant section in 3GPP Spec.TS25.101	Items for the technical requirements
5.2	Frequency Band
5.3	TX-RX frequency separation
5.4.2	Channel Raster
6.1	Antenna Gain (in Japan less or equal than 3dBi)
6.2	Transmit power
6.3	Frequency stability
6.4.3	Minimum transmit output power
6.5.1	Transmit OFF power
6.6.1	Occupied bandwidth
6.6.2.2	Adjacent channel leakage power ratio
6.6.3	Spurious emissions
6.8	Modulation accuracy
7.3	Static reference sensitivity level
7.5	Adjacent channel selectivity
7.7	Spurious response
7.8	Intermodulation characteristics
7.9	Spurious emissions
(EMC for Terminal)	Radiated emissions

2. Technical Requirements for DS-CDMA FDD based on Japan Telecommunication Business Law

Japanese regulatory organization, Telecommunications Technical Council, submitted a primary report regarding technical requirements for the IMT-2000 terminals, including WCDMA-FDD terminals, in March 2000. Following this report, Ministry of Posts and Telecommunications will start legislating work for Telecommunication Business Law and ordinance for IMT-2000 terminals.

Following items are included in the requirements for terminals.

Basic requirements:

Article	Requirement	Relevant test case in 3GPP	Remarks
Article 17-1 The function to originate	UE shall transmit the signal which orders call originating where it originates.	TS 34.123-1 V.1.0.1 8.3.1.2.2.2	Test of the ability to send signals for Call request
Article 17-2	UE shall transmit the signal which confirms	TS 34.123-1	Test of the

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The function to answer a call coming	answering a call incoming where it answers a call coming.	V.1.0.1 8.3.1.3.3.	ability to send signals for responding the call request from BS
Article 17-3 The function to terminate communication	UE shall transmit the signal which terminates the channel where it terminates communication.	TS 34.123-1 V.1.0.1 8.3.1.2.6.2-4	Test of the ability to disconnecting a channel.

Requirements for connecting to telecommunications networks using radio transmission:

Article	Requirement	Relevant test case in 3GPP	Remarks
Article 19 Transmission timing	1. In case of transmitting via the control channel, the control channel shall be synchronized with the slot received from the base station, and UE shall transmit upon the access slot designated from the base station. 2. In case of transmitting via the speech channel, the speech channel shall be synchronized with the frame received from the base station, and UE shall transmit after 1024 chips delay from commencement boundary of received frame. The deviation of the commencement boundary of transmission shall be within ±1.5chips.	TS 34.121 V.3.0.1 7.1.2.3, 8.6.2	Test of ability to transmit at a specified slot
Article 20 Random access control	1. After UE transmits the signal in the condition specified by the base station, if UE receive the Acknowledgement signal upon the timing designated by the base station (7680chips later or 12800chips later), UE shall transmit the message, 7680 chips later after receiving the Acknowledgement signal. 2. If UE receives the Not-Acknowledgement signal upon the timing designated by the base station, or if UE receives neither Acknowledgement signal nor Not-Acknowledgement signal, UE shall repeat the action described in paragraph I). In this case, the maximum times of the repeated actions shall be less than those designated by the base station and also less than 64 times.	TS34.123-1 V.1.0.1 7.1.2.1-2	Test of Random Access Control - timing maximum number of repeated trials
Article 22 Location registration control	UE shall transmit the signal which orders registration of the UE's location information only where the location information received from the base station does not conform to that memorized by UE.	TS 34.123-1 V.1.0.1 8.2.4.1	Test of Location Update

	However, UE may transmit the signal when UE receives specific instruction from the base station or when the user operates the UE. Furthermore, UE shall update and hold the location information it has memorized, when it receives a signal from the base station confirming registration of the UE's location information.		
Article 23 The function to obey the order from the base station to switch the transmission channel	UE shall switch the transmission channel to that which has been designated, when it receives the signal designating the channel from the base station.	TS 34.123-1 V. 1.0.1 8.3.1.3.3.2, 8.1.3.4.1-3, 8.3.1.3.4.7, 8.1.3.5.1, 8.3.1.3.5.8	Test of ability to switch to designated channel during e.g. channel assignment and HO.
Article 24 The function to inform the base station of received signal level	UE shall detect the received signal level of the designated control channel of the base station around the UE in accordance with the conditions designated by the base station. UE shall inform the base station of the level when the received signal level of the control channel of the base station around the UE satisfies the requirements designated by the base station.	TS 34.123-1 V.1.0.1 8.1.4.1.1	Test of measurement reporting
Article 25 The function to obey the order from the base station to stop transmission	UE shall, when it receives a signal ordering disconnection of channel from the base station, transmit a confirmation signal and stop transmission. However, in case of the situation where the base station request otherwise, UE doesn't have to transmit a confirmation.	TS 34.123-1 V.1.0.1 8.3.1.2.4.5-7, 8.3.1.2.6.2-4, 8.3.1.3.4.3-4	Test of the ability to disconnecting a channel on command of the base station.
Article 26 The function to automatically stop transmission, where received signal level or communication quality is degraded	UE shall automatically stop transmission whereby a received signal level or communication quality is degraded.	TS34.121 5.4.4 (T1R000157)	Test of the ability to stop transmission
Article 27 The function to automatically stop transmission in case of TE's failure	TE shall automatically stop transmission where it continues transmission by its failure.	Currently no test case expected (manufacturer's declaration).	Confirmation of the ability to disconnecting a channel. In earlier systems the ability has been

			declared by the terminal manufacturer in the respective application.
Article 28 The function to secure the important communications	UE shall not transmit when it receives the signal demanding restriction of a call originating from the base station.	TS 34.123-1 V.1.0.1 7.1.1	Test of the ability to restrict origination on request by BS
Article 29 The function to prevent UE's own information from being changed	UE's own information (the information which specifies UE and is used for setting channels) is not be able to be easily changed. Furthermore, UE's own information, except that to which the user has direct access, shall not be easily known.	Currently no test case expected (manufacturer's declaration).	Confirmation of MS specific information (e.g. IMEI) security. In earlier systems the ability has been declared by the terminal manufacturer in the respective application.

Other requirements:

Article	Requirement	Relevant test case in 3GPP	Remarks
Article 18-1 Time limitation of automatic confirmation at the time of calling	If UE has the function to automatically confirm the answer from the terminal of the other party at the time of calling, then, in case of the situation that UE cannot confirm the answer, the UE shall transmit the channel termination signal and shall stop the transmission within 2 minutes after the UE sends the address signal.	No test case identified in 3GPP specifications.	Test of transmission termination in case terminals with a function to automatically confirm response
Article 18-2 Limitation on times of automatic redialing	If UE has the function of automatic redialing, the automatic redialing shall not be repeated more than three times. When, however, redialing is done more than 3 minutes after the first dialing, it is considered to be separate dialing. This requirement will be exempted in case of emergency such as fire, robbery or other urgent occasions.	TS 34.123-1 V.1.0.1 10.3	Test of auto-calling restrictions
Article 31	If UE can connect multiple speech	No test case	For terminals

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Crosstalk attenuation	channels, then the crosstalk attenuation between the channels within the UE shall be 70dB or greater at the frequency of 1,500 Hz. However, it shall be 60dB or greater as for UE which has the channel switching function.	identified in 3GPP specifications.	with multiple telecommunication circuits (e.g. FWA). In earlier systems the crosstalk attenuation between the communication lines is measured and reported.

General requirements:

Article	Requirement	Relevant test case in 3GPP	Remarks
Article 3 Border of responsibility	In order to clarify the boundary of responsibility with the operator's telecommunication equipment, it is necessary to establish a border point with such facilities. The method of connection at this border point must be such that the MS can be easily cut-off from the operator's telecommunication equipment in the case of each telecommunication circuit	Currently no test case expected (manufacturer declaration).	In earlier systems the mobile terminal manufacturer has declared that the terminal can be cut off from operator's telecommunication circuit by turning the power switch off.
Article 4 Restricted identification of communication leakage	No function is to be present for purposefully identifying the content of communication leaking from the operator's telecommunication equipment.	Currently no test case expected (manufacturer declaration).	In earlier systems the mobile terminal manufacturers have declared that the terminal does not provide a function to receive and identify intentionally the radio waves that are directed to other terminals.
Article 5 Restricted ringer tone	A function is to be present for preventing the generation of a ringing tone (a state of oscillation resulting from an electrical or acoustical combination) with the operator's telecommunications equipment.	No test case identified in 3GPP specifications.	In case there is a section that uses a 2-wire system to perform the sending and receiving of analog signals between part of the terminal facility and other

			part. In earlier systems the loss in the equipment or unit providing the 2-wire system analogue interface has been measured (howling).
Article 6 Insulation resistance, etc.	UE shall have appropriate the insulation resistance and dielectric strength between its power circuit and its box, and between its power circuits and the telecommunications facilities used for telecommunications business.	No test case identified in 3GPP specifications.	In the case the mobile terminal is equipped with AC adapter. In earlier systems the insulation resistance value between the power source and the equipment housing or FG, and between the source and the terminal Line1, Line2 are measured.
Article 7 Prevention of the occurrence of excessive acoustic shock	UE with a voice communication feature shall have a function which prevents the occurrence of excessive acoustic shock in a telephone receiver while being used for conversation.	Currently no test case expected (Manufacturer's declaration).	In earlier systems the ability has been declared by the terminal manufacturer in the respective application.
Article 8 Wiring, etc.	The circuit line and protective device utilized when connecting the MS to the operator's telecommunication equipment is to be suitably setup from the standpoint of preventing noise and excessive electrical current to the operator's telecommunication equipment.	No test case identified in 3GPP specifications.	In the case of mobile telephone terminals, in earlier systems it has been generally considered that there is no change they will use a powerline carrier system or electric waves in the terminal facility, so traditionally this explanation has been omitted.
Article 9 Radio equipment	1. Components within the terminal equipment which interact using radio waves	No test case identified in	In earlier systems these

within the terminal	are to have appropriate identification codes. 2. With the exception of special cases, the idle state of radio frequencies is to be assessed, and a traffic channel established only during idle status. 3. With the exception of special components, radio equipment is to be stored within a single housing which cannot be easily opened.	3GPP specifications.	items have not applied to the system radio interface, but instead to other interfaces from the terminal (e.g. Bluetooth, remote vibrator and keyboard).