Telecommunications Regulatory Commission

Type Approval Specification
(Compliance List)
for
DECT System

For use within the confined building
In the frequency bands (1880-1900 MHz)

Specifications	Actual Value	Comply		Official Use Only
		Yes	No	
1- RF Carrier				
1880 – 1900 MHz				
2- RF Carrier Stability				
2-1) Radio Fixed Part (RFP) ± 50 KHz 2-2) Portable Part (PP) i) measurement made during the first 1 sec of the IUT going into a transmit mode from a non-transmitting mode. ± 100 KHz ii) measurement made at any other time. ± 50 KHz				

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3- Packet Timing Jitter				
3-1) slot - slot on the same channel < ± 1 µs 3-2) bit - to - bit in the same within ± 0.1 µs slot on the same channel				

4- Reference Timing Accuracy of a RFP

4-1) Reference Timing Accuracies and Stabilities

Type of IUT	Temperature	
	Nominal	Extreme
Multiple channel RFP	5 ppm	10 ppm
Single channel RFP	No Test	10 ppm

4-2) Allowable Timing Variations

Timing accuracy and stability (ppm)	Ranges of t_{long} constituting a pass (secs)
5	$9{,}99995 < t_{long} < 10{,}00005$
10	$9{,}99990 < t_{long} < 10{,}00010$

5- Transmitted Power

Equivalent Isotropically Radiated Power

5-1) PP and RFP with integral antenna ≦ 250 mW

5-2) PP and RFP with external antenna connector ≦ 250 mW

6- RF Carrier Modulation

Peak Frequency Deviation

Part 1 > ± 259 kHz < ± 403 kHz

Part 2 > ± 202 kHz < ± 403 kHz

Part 3 > ± 202 kHz < ± 403 kHz

Part 4 not > 13 kHz/ms

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<table>
<tr><th>Specifications</th><th>Actual Value</th><th colspan="2">Comply</th><th>Official Use Only</th></tr>
<tr><td></td><td></td><td>Yes</td><td>No</td><td></td></tr>
<tr><td>7- Emision</td><td></td><td></td><td></td><td></td></tr>
<tr><td>7-1 Emissions due to modulation
Shall not be greater than the power levels stated below :
<table><tr><th>Emissions on RF Channel "Em"</th><th>Max Power Level</th></tr><tr><td>Em = M ± 1</td><td>160 µW</td></tr><tr><td>Em = M ± 2</td><td>1 µW</td></tr><tr><td>Em = any other DECT channel</td><td>20 nW*</td></tr></table>* NOTE :
For " Em" = any other DECT channel", the max power level shall be less than 20 nW except for one instance of a 500 nW signal.

"M" is the IUT transmit channel and
"Em " is a legal DECT channel other than the IUT transmit channel.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>7-2- Emissions due to transmitter transients
Shall not be greater than the power levels stated below :
<table><tr><th>Emissions on RF channel "Em"</th><th>Max peak power level</th></tr><tr><td>Em = M ± 1</td><td>250 µW</td></tr><tr><td>Em = M ± 2</td><td>40 µW</td></tr><tr><td>Em = M ± 3</td><td>4 µW</td></tr><tr><td>Em = any other DECT channel</td><td>1 µW</td></tr></table>"M" is the IUT transmit channel

" Em " is a legal DECT channel other than the IUT transmit channel</td><td></td><td></td><td></td><td></td></tr>
<tr><td>7-3) Emissions due to intermodulation
not > 1 µW on all measurement channels</td><td></td><td></td><td></td><td></td></tr>
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8- Transmission				
8-1) Out of band emissions when transmitting Spurious emissions : - radiated - conducted i) Freq below 1 GHz < 250 nW ii) Freq above 1 GHz < 1 μW Peak Power Level* 47 - 74 MHz] 87.5 - 108 MHz] < 20 nW 108 - 118 MHz] (for a 100 kHz 174 - 230 MHz] measuring bandwidth) 470 - 862 MHz] * except 2 instances of a continuous-wave spurious signal for PPs for which the total peak power level shall be less than 250 nW as measured in a 3 MHz measurement bandwidth.				
9- Reciever				
9-1) Radio Receiver Sensitivity Bit Error Rate (BER) ≤ 0.001				
9-2) Radio Receiver irreducible bit error rate Bit Error Rate (BER) ≤ 0.00001				
9- 3) Radio Receiver interference performance Bit Error Rate (BER) ≤ 0.001				
9-4) Receiver intermodulation performance Bit Error Rate (BER) < 0.01				
9-5) Spurious emissions when receiving or idling i) Outside the DECT band 30 MHz - 1 GHZ < 2 nW 1 GHz - 12.75 GHz < 20 nW				

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ii) Inside the DECT band < 2 nW in a 1 MHz bandwidth* * exceptions : 1) in one 1 MHz band within the DECT freq band, the max allowable ERP shall be 20nW. 2) in up to two bands of 30 kHz, the max ERP shall be less than 250 nw.				
Synchronization 9-6) Voltage levels CCITT REC V.11 [29]				
10- Distortion				
10-1) PP loudness rating Sending Loudness Rating (SLR_H) = 7 dB ± 3 dB Receiving Loudness Rating (RLR_H) = 3 dB ± 3dB				
10-2) Stability loss - fixed geometry Attenuation from the digital input to the digital output shall be at least 6 dB at all freq in the range of 200 Hz to 4000 Hz				
10-3) Stability loss variable geometry Attenuation from the digital input to the digital output shall be at least 6 dB at all freq in the range of 200 Hz to 4000 Hz				
10-4) Sending distortion Ratio of signal to total distortion (harmonic and quantising) measured at the line interface shall not be less than 35 dB				
10-5) Receiving distortion Ratio of signal to total distortion (harmonic and quantising) measured at the ERP shall not be less than 35 dBb				
10-6) Side tone distortion The third harmonic distortion generated by the PP shall not be greater than 10 %.				

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<tr><td>11- Out of band (sending)</td><td></td><td></td><td></td><td></td></tr>
<tr><td>The level of any image freq produced at the digital interface shall be below a reference level obtained at 1 kHz (-4.7dBPa at MRP) by at least the amount in dB specified in the following table

<u>Discrimination levels - sending</u>
<table><tr><th>Applied sine wave frequency</th><th>Limit (minimum)</th></tr><tr><td>4.6 kHz
8.0 kHz</td><td>30 dB
40 dB</td></tr></table>The limits at intermediate frequency lie on a straight line drawn between the given values on a log(frequency) - linear (dB) scale.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>12- Out of band (receiving)</td><td></td><td></td><td></td><td></td></tr>
<tr><td>The level of spurious out-of-band image signals in the freq range of 4.6 kHz to 8 kHz measured selectively at the ERP shall be lower than the in-band acoustic level produced by a digital signal at 1 kHz set at the level specified in the following table.

<u>Discrimination levels – receiving.</u>
<table><tr><th>Image signal frequency</th><th>Equivalent input level</th></tr><tr><td>4.6 kHz
8.0 kHz</td><td>- 35 dBm0
- 45 dBm0</td></tr></table>The limits at intermediate frequency lie on a straight line drawn between the given values on a log(frequency) - linear (dB) scale.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>12- Noise</td><td></td><td></td><td></td><td></td></tr>
<tr><td>12-1) Sending noise

The noise produced by the apparatus in the sending direction shall not exceed - 64 dBm0</td><td></td><td></td><td></td><td></td></tr>
<tr><td>12-2) Sending noise (narrow band)
The narrow-band noise (due to TDMA) produced by the apparatus in the sending direction, and contained within any 10 Hz bandwidth between the frequency limits 300 to 3400 Hz shall not exceed - 73 dBm0.</td><td></td><td></td><td></td><td></td></tr>
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12-3) Receiving noise If no user-controlled receiving volume control is provided, or if it is provided, at the setting where the RLR_H is equal to the nominal value, the noise produced by the apparatus and measured at the ERP shall not exceed - 57 dBPa (A).				
13- Sampling frequency level (receiving)				
The level of the 8 kHz measured selectively at the ERP shall be less than - 70 dBPa.				
14- Acoustic shock				
14-1) Continuous signal The sound pressure level at the ERP shall not exceed 24 dBPa (rms unweighted). 14-2) Peak signal The receiving equipment shall limit the peak sound pressure at the ERP to less than 36 dBPa under any continuous or transient condition.				
15- Delay				
15-1) DECT network delay The sum of the delays from the MRP (Mouth Reference Point) to the digital line interface and from the digital line interface to the ERP (round-trip delay) shall not exceed 27.5 ms. If an analogue line interface is provided, the delay shall not exceed 28 ms including the A/D and D/A converters at the interface to the external network.				
15-2) PP (Portable Part) delay The sum of the delays from the MRP to the air interface and from the air interface to the ERP (Equivalent Radiated Power,round-trip delay) shall not exceed 18.5 ms. This value includes the 5 ms delay of the reference FP looping back the ADPCM digital signal towards the PP.				
15-3) FP (Fixed Part) delay The sum of the delays from the digital line interface to the air interface and from the air interface to the digital line interface (round-trip delay) shall not exceed 19 ms. This value includes the 5 ms delay of the reference PP looping back the ADPCM digital signal towards the FP.				

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