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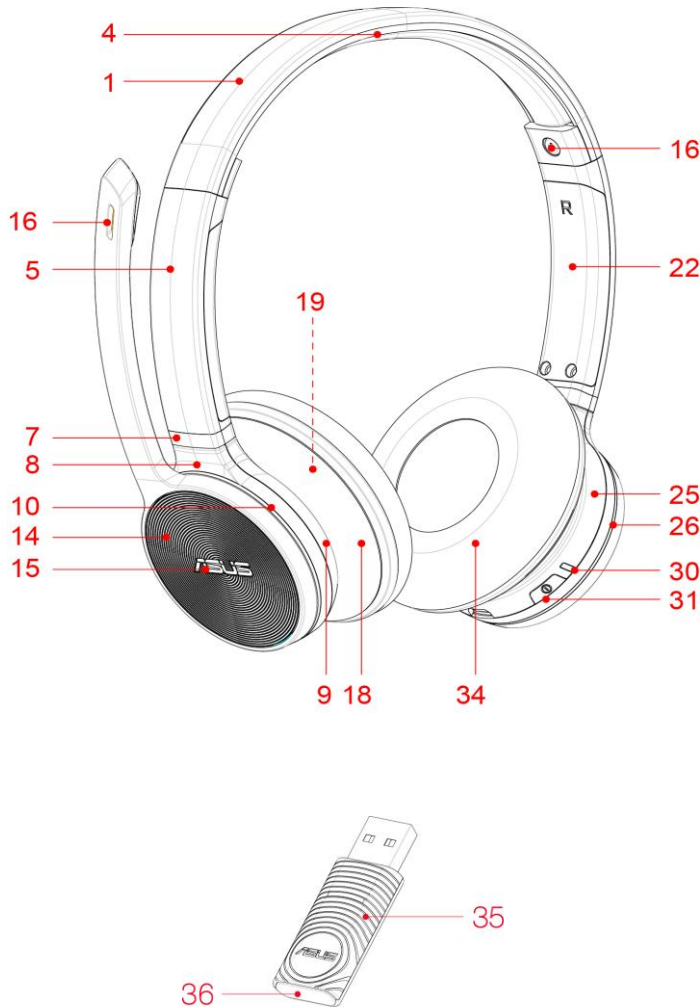
Change history

Revisions	Date	Sections	Updates	Remarks
001	Jul-27-2011			Primary version
		1.	1.	

1 APPEARANCE




2 PRODUCT DIMENSIONS & ID



33. R_EARCUP_COVER
34. R_EARCUP_FOAM
35. Dongle_UPPER_HOUSING
36. Dongle_BOTTOM_HOUSING

Headset

1. HEADBAND
2. R_HEADBAND_COVER
3. L_Headband_COVER
4. HEADBAND_FOAM
5. L_SLIDE HOLDER_F
6. L_SLIDE HOLDER_B
7. L_SLIDE HOLDER_RING
8. L_EARCUP HOLDER_F
9. L_EARCUP HOLDER_B
10. L_EARCUP HOLDER_RING
11. MIC_BOOM_F
12. MIC_BOOM_B
13. MIC_BOOM_LEDLENS
14. MIC_BOOM_COVER
15. L_ASUS_LOGO
16. MIC_FOAM_F
17. MIC_FOAM_B
18. L_EARCUP
19. L_EARCUP_COVER
20. L_EARCUP_FOAM
21. R_SLIDE HOLDER_F
22. R_SLIDE HOLDER_B
23. R_SLIDE HOLDER_RING
24. R_EARCUP HOLDER_F
25. R_EARCUP HOLDER_B
26. R_EARCUP HOLDER_RING
27. R_EARCUP HOLDER_B_COVER
28. R_EARCUP HOLDER_COVER
29. R_ASUS_LOGO
30. POWER_LEDLENS
31. POWER_KEY
32. R_EARCUP

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3 ELECTRICAL SECTION

3.1 Physical Characteristics

1. Indicator Lights: Provides a visual cue regarding the status of the headset
2. Power ON/OFF switch: Push button to turns headset on and off
3. Volume Control Buttons: Adjusts the speaker (receiver) volume
4. Micro-USB power connector: Allows connection to PC USB only for charging.
5. Boom Switch: Swim down to enable MIC.

3.2 Hardware Description

The Headphones contains a 2.4G module, battery, and acoustic transducers for audio communication via the RF link to a PC or NB. A LED provides visual feedback to the users and others about the status of the headphones. There are two user interface regions, left and right sides, to operate all control features of the headphones, rotating boom switch, volume up and down.

3.3 Functionality

RIGHT SIDE

Volume Control: Increase and decrease volume buttons. (volume mute a bit, pop up noise, reset way)

Power On/Off&Pairing mode&HW reset : multi-function button

Press 2 sec Power On/Off

Press 5 sec enter pairing mode

Press 10 sec HW Reset

LED: Indicate the status of headset.

Power LED: Dual Color LED, RED and GREEN.

Green LED flash slowly in no-pairing mode.

Green LED turns on constant and turns off after 3min. when handset pairs success.

Green LED flash quickly when handset is pairing.

Red LED turns on constant when handset is charging.

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Red LED turns off when battery finishes charging.

Red LED flash slowly when handset is on low-battery mode.

Red LED flash quickly when handset is error charging (Charge Suspend for temperature, Timer Fault, Input power overvoltage, Battery short).

LEFT SIDE

Boom Switch: Rotate boom down to enable the MIC and pick up skype-in

RED LED: RED LED turns on when MIC enabled.

3.4 ASSEMBLY REQUIREMENTS

3.4.1 Electrical Specifications

3.4.2 Battery Specifications (For Reference Only)

Battery Type	Lithium Ion Polymer	
Battery Capacity	410 mAh	
Battery Voltage	3.7V (Nominal)	
Operating Voltage	3.3 ~ 4.2V	
Maximum Fast Charge Rate	200 mA	
Battery Life Cycle	≥300 Cycles	

3.4.3 Input requirements

Input DC Voltage	5V ±5%
Input Current	100mA (min.), 250mA (max) Note the max current is the maximum current allowed by the device during loss of charge control. This loss of charge control constitutes a single fault condition of the device. The device shall limit the current by some means to this max limit.
Input connector	Type-B Micro USB
Charging time	3hr

3.4.4 Current Consumption

Operating Mode	Mode Description	Current Consumption (mA)(rms) from Battery
Off Mode [X]	Headset is not active.	≤ 0.05mA
Standby Mode	Headset is active, paired and connected to the phone.	≤ 50mA
Playing Mode	Headset is operating.	≤ 65mA
Battery Life Time	Playing music	6hr

3.5 Tone MMI

Status	Action
Enter low battery mode	Alert Tune beeps.
MIC enable and disable	Ring tone
Power On	Ring tone
RF link	Ring tone

3.6 RF

Table 1					
RF General Characteristics					
	Parameter	Minimum	Typical	Maximum	Units
	Operating Frequency	2400		2525	MHz
	PLL Programming step		2		MHz
	System frequency		16		MHz
	Frequency deviation		+/-700		KHz
	Channel spacing		2		MHz
RF Transmitter Characteristics					
	Maximum output power		6	8	dBm
	20dB Bandwidth for modulated carrier		3		MHz
	First adjacent channel transmit power 2MHz			-20	dBm
	Second adjacent channel transmit power 4MHz			-50	dBm
RF Receiver Characteristics					
	Maximum received signal at 0.1% BER		0		dBm
	Sensitivity(0.1% BER)		-80		dBm
	RF Range		10		m

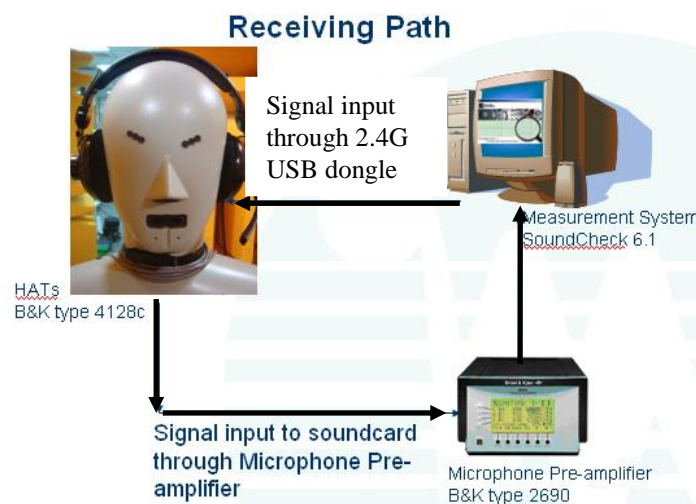
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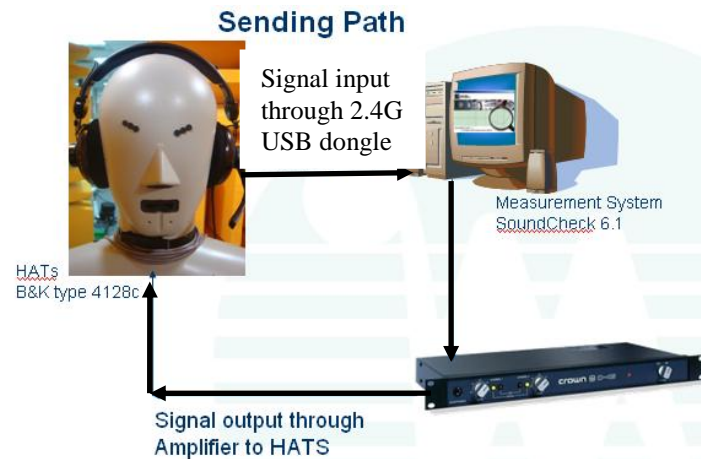
4 ACOUSTIC

4.1 Audio Performance – General Information

Unless otherwise specified:

- Microphone and speaker design verification testing will be done on a HATS (per ITU-T P.58 specification) with a Type 3.3 ear with a soft pinna (per ITU-T P.57 specification).
- Frequency response masks are floating, best fit masks.
- DRP to ERP correction will be applied to all measurements performed using the Type 3.3 ear as defined in the ITU-T P.58 specification.
- SLR calculations are to be performed following the ITU-T P.79 specification.
- Frequency response measurements must be done with a resolution of at least 1/12th octave or R40 series from 100 to 8000 Hz.
- Measurements are to be performed at standard temperature and pressure of 25° C and 1 atmosphere.
- Environment setup for receiving measurement path and sending measurement path are shown as blow Fig.





Any deviation from the prescribed testing conditions must be called out in the design verification reports.

4.2 Audio Performance

4.2.1 Summary of key audio parameters

Parameter	Value	Test Signal Level	Note
Max SPL @ ERP	< 120 dB SPL	-3.01 dBDrms	20Hz-20KHz, DRP-to-ERP correction needs to be applied
RX THD	RXTHDMASK See mask	-3.01 dBDrms	300-8000 Hz, RX THD<3%
RX Idle receive noise	< -56 dBPa(A)	-Inf dBDrms sent	Audio connection must be active
SLR	15+/- 3	-4.7 dBPa(A) @ MRP	Artificial speech P50 test signal must be used. The SLR is calculated from 100-8KHz.
Send Response TX Mask	TXMASK See mask	-4.7 dBPa(A) @ MRP	Artificial speech test signal must be used.
Idle send noise	< - 64 dBm0p		Psophometric weighting used
TCL_w	> 30dB	-18.2dBDrms	Real speech must be used

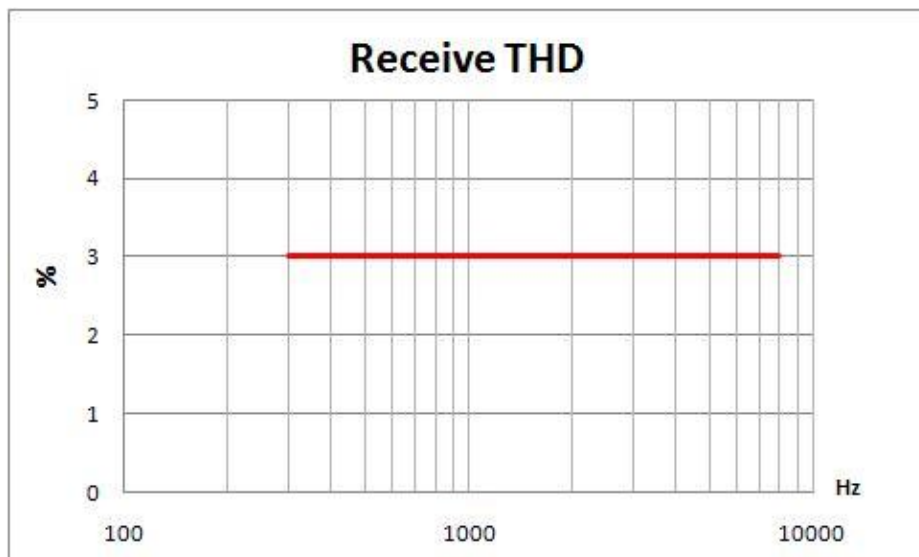
4.2.2 Max allowed SPL @ ERP


This can be measured by sweeping a -3 dBDrms tone, and measuring the response from the IEC711 coupler. Note that the DRP-to-ERP correction is to be applied. No point on the curve is to be above 120 dB.

4.2.3 Receive THD

The Receive THD shall be measured at the maximum volume step with a -3dBDrms sweep sine signal from 20Hz to 20KHz, and measuring the response from the IEC711 coupler. The headset Receive THD shall fall below the upper limit given in the following Table and Figure.

Limit Curve	Frequency (Hz)	Send Response Limit (dB) [floating level]
Upper Limit	300	3
	1000	3
	5000	3
	8000	3



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4.2.4 Idle receive noise (dBA)

The idle receive noise shall be measured at the maximum volume step. This must be measured with a quiet (all zero) signal being sent. The final ERP spectrum must be A weighted and power summed to achieve the final dBA value. Following the ITU-T p.310 recommendation, It shall not exceed -56 dBPa(A) or 38 dBA SPL measured on an IEC711 coupler with the DRP-to-ERP correction applied.

4.2.5 Send path

The send microphone path is to be measured on a HATS with the send path representing the transfer function from the pressure at MRP to the microphone signal. Frequently in DSP enabled headsets, the send path cannot be measured with tones, but must be measured with a broadband artificial speech signal into the hats mouth simulator.

The send path requirements are to be measured with an in-speech SPL of -4.7 dBPa(A) or 89.3 dBA SPL ± 3 dB at MRP. The signal sent into the artificial mouth must be equalized to compensate for the non-flat response of a HATS artificial mouth to achieve a nearly flat response between the digital representation of the test signal and the MRP pressure.

4.2.6 SLR

The SLR is the loudness loss in the send direction from the acoustic signal at the mouth reference point to the send signal at the digital reference point. Refer to Annex A and ITU-T Recommendation P.79.

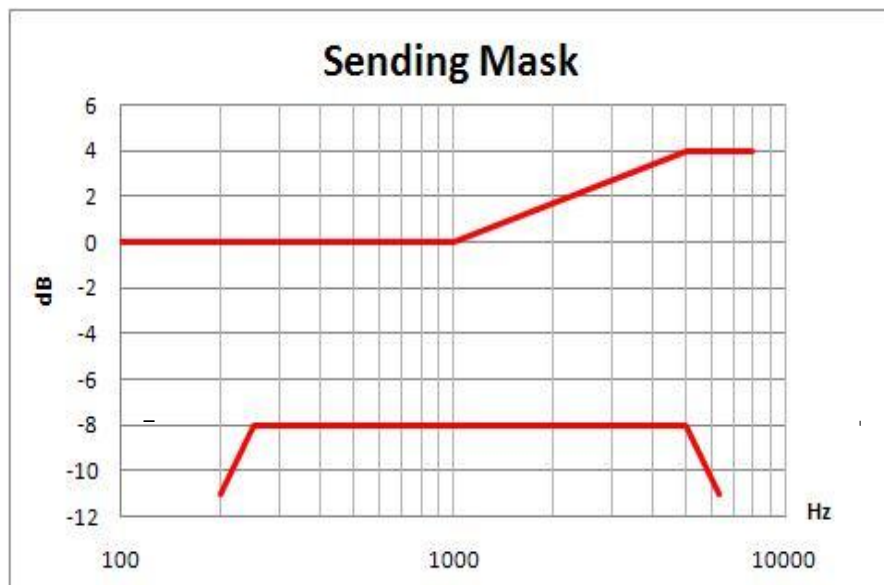
The SLR shall be calculated using the $1/3^{\text{rd}}$ octave sensitivity data collected from the send frequency response measurement. Use equation [A1] of Annex A and bands 1 to 20, of Table 14. The terminal is designed to have a SLR = 15 dB ± 3 dB

4.2.7 Send mask

The headset send frequency response shall fall between the upper limit and the lower limit given in the following Table and Figure. The limit curves shall be determined by straight lines joining successive co-ordinates given in the table, when frequency response is plotted on a linear dB scale against frequency on a logarithmic scale. Note that the frequency response mask is a floating or “best fit” mask.



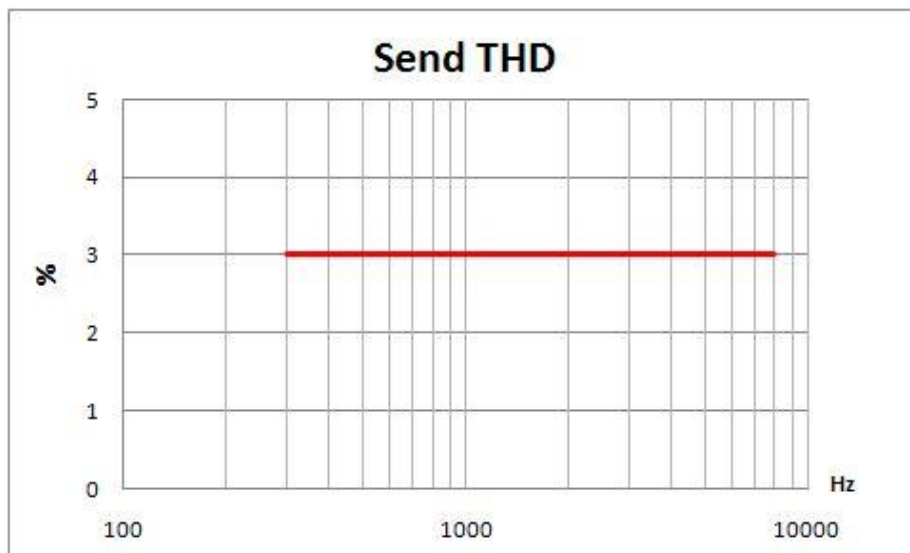
Limit Curve	Frequency (Hz)	Send Response Limit (dB) [floating level]
Upper Limit	100	0
	1000	0
	5000	4
	8000	4
Lower Limit	200	-11
	250	-8
	5000	-8
	6300	-11



4.2.8 Send THD

This is to be measured with a -4.7 dBPa(A) measured at MRP using a sweep sine signal played from the HATS artificial mouth. The headset send THD shall fall below the upper limit given in the following Table and Figure.

Limit Curve	Frequency (Hz)	Send THD Limit (%)
Upper Limit	300	3
	1000	3
	5000	3
	8000	3




4.2.9 Idle send noise

The idle send noise from the microphone shall be

idle send noise < -64 dBm0p


per the ITU-T P.310 recommendation, where the p denotes the psophometric weighting defined in the ITU-T 0.41 recommendation.

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4.2.10 Echo performance


The test signal level shall be -18.2 dBDrms. The TCLw is calculated according to ITU-T Recommendation G.122 [8], annex B, clause B.4 (trapezoidal rule). For the calculation the averaged measured echo level at each frequency band is referred to the averaged test signal level measured in each frequency band. The length of the test signal shall be at least one second (1,0 s).

$$TCL_w > 30 \text{ dB}$$

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5 RELIABILITY

ID	Test Item	Specification
A. Mechanical Test		
A-1	Free drop test	Heigh: Headset: 100cm; Dongle: 76cm Concrete floor for 6 faces
B. Life Test		
B-1	Sliding parts push-pull cycle life test	5000 cycles (20 cycles/min)
B-2	Latera expansioncycle life requirement (10cm)	Latera expansion cycle life requirement (10cm) Lateral expansion cyclelife test: :The R-earcup and L-earcup must be capable of being separated 100.0mm from the relaxed position, for 4000 cycles without any physical damage to any electrical or mechanical component. There should be no permanent deformation in the headband spring or relaxation to the spring rate of the headband spring. One cycle is an expansion to 100.0 mm from the relaxed position and an immediate return to the relaxed position.(PS:allow 2.5mm change)
B-3	Volume button	10,000 times (1 times/sec) and loading: 300g
B-4	Bending Test (Cable)	2000 cycles, +/-90 degree, loading: 300g
B-5	Pull test (Cable)	3kg(both side), 60 seconds
B-6	I/O Connector Insert/Remove Test	Test Frequency: 20 times/min Test Cycle:4000 times
B-7	Rotation life cycle test	(1)(Folding Fulcrum):The R-earcup and L-earcup must be capable of being Normal after 3000 times (20 times/min). (2)(Microphone):Must be capable of being Normal after 3000 times (20 times/min).
B-8	Lateral over expansioncycle life requirement	The R-earcup and L-earcup must be capable of being separated 200.0mm from the relaxed position, for 10 cycles without component breakage. A permanent 10% set is allowable in the headband spring.
C. Enviromental		
C-1	Operation temperature/Humidity test	0degC, 24hrs ; 40degC, 90%RH, 24hrs
C-2	Thermal shock test	-30degC~60degC, 27cycles, 1 cycle/1.5hrs
C-3	Altitude test (Non-Operation)	Non -Opeation: 40000 feet, -30degC, 8 hrs

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C-4	Altitude test (Operation)	Operation = 15000 feet , -14.7℃ , 8hrs
C-5	Thermal Profile Measurement	25℃,35℃,40 ℃ , 2hrs (each condition)
C-6	Non-OP High Temperature/Humidity Test	Ta=60℃ , 90% RH , 72 hrs
C-7	Non-OP Low Temperature Test	Ta= - 40℃ , 72 hours
C-8	Audio Signal Measurement	According to vender spec

D. Durability Test for Dongle

D-1	Pressure Test	Location:Top & Bottom Disc Radius:10cm Pressure Force:50kg Pressure Hold Time:60 sec Number of press: One time
D-2	I/O Connector Insert/Remove Test	Test Frequency: 20 times/min Test Cycle:4000 times
D-3	Bending Test	Plug into the USB receptacle (face side and back side): Diameter 12mm cylinder, Pressure / Stroke(vertical on dongle): 5kg / 5mm, 10 cycles
D-4	Bending Life Test	Plug into the USB receptacle (face side and back side): Cylinder diameter 12mm, Pressure / Stroke(vertical on dongle): 2.5kg / 10mm, 1500 cycles, check function every 100 cycles

E. Printing Test


E-1	Rubber test	Load: 500g, times: 65 cycles ; Abrasion Resistance: EF74
E-2	Alcohol test	Load: 500g, times: 30 ;Alcohol (95%)
E-3	Adhesion test	10 X10 squares ; (pass rating: 5B)
E-4	Cosmetics test	70degC, 90%RH, 24hrs (NIVEA and Atrix cream)

F. Additional Test

F-1	Human perspiration test (SEMC)	48 hours at temperature of 45℃ and 50-60 % RH
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G. Package Shipment Test

F-1	Cold Storage Test	Temperature:-40℃ Duration:72 hours
F-2	Damp Heat Storage Test	Temperature:60℃/90% Duration:72 hours
F-3	Packaging Vibration Test	5~200 hz, 60 min, 1.48Grms, 3 axes Reference ASTM Level II Truck Spectrum

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F-4	Packaging Bump Test	Pulse Shape:Half-Sine wave Peak Acceleration:40G Duration: 6+-2ms Direction : Normal position Times:4000		
F-5	Non- Packaging Bump Test	Pulse Shape:Half-Sine wave Peak Acceleration:40G Duration: 9ms Direction : Normal position Times:1000		
F-6	Packaging Drop Test	Package Weight (KG)	Drop Height (cm)	No. Drops (Times)
		0 ~ 9.1	91	10
		9.2 ~ 18.2	76	10
		18.3 ~ 27.2	61	10
		27.3~45.4	46	10
		10 Drops : 1 corner,3 edges and 6 surfaces		
F-7	Package Compression Test	[((stack layer -1)+3)*(one carton loading)]+Storage test (-40 °C,48hrs+60°C/90%, 48hrs) condition.		
I. EMC & RF				
	EMC pre-test	ESD, CS, OTA & RE		
J. Performance				
J-1	Listen time test	Max VOL(mA) 1K tone		
J-2	Standby time test	Power on and RF function is OFF		

NCC 警語

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

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FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Labeling requirements

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canada, Industry Canada (IC) Notices

This Class B digital apparatus complies with Canadian ICES-003 and RSS-210.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Canada, avis d'Industry Canada (IC)

Cet appareil numérique de classe B est conforme aux normes canadiennes ICES-003 et RSS-210.

Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférence et (2) cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.