IMM 2008.10.17

NORTHWEST

ELECTROSTATIC DISCHARGE

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION	
AV Playback	
Syncing to Laptop	
AV Playback, 720p	

POWER SETTINGS INVESTIGATED

Battery

230VAC/50Hz

CONFIGURATIONS INVESTIGATED

MCSO1426 - 1,2,3,5

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
ESD Gun	Schaffner	NSG 435	IGC	2/27/2009	13 mo

MEASUREMENT UNCERTAINTY

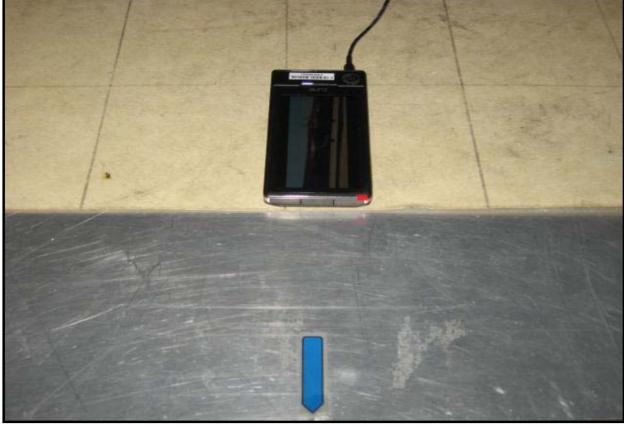
Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, an ESD Immunity test was performed. The EUT was tested using air and contact discharges. The specified number of air discharges was applied to each of the non-conductive surfaces of the EUT as listed in the data sheet. The specified number of contact discharges was applied to each of the conductive surfaces, seams, and control surfaces of the EUT as listed in the data sheet. If a response is detected after discharge, the type of response, discharge level and location are noted. Testing was conducted with the EUT fully cabled. Discharges were made to the connector shells, not to the individual conductors.

NORTHWEST EMC			Е	SD DA1	TA SHE	ET					IMM 2008.10.1 E
	Zune HD							V	Vork Order:	MCSO1426	6
Serial Number:										06/05/09	
	Microsoft Corporation							Те	mperature:		
Attendees: Project:	James Wooten			0	la .			D	Humidity:		
	Travis Rychener			Config. #:	Battery			Barom	etric Pres.: Job Site:		
TEST SPECIFICATION				rower	Dattery				JOD Site.	3003	
	EN 55024:1998 (Amend	ed by A1:	2001 and A	2:2003)		Method:	IEC 61000-	4-2:2008			
TEST PARAMETERS	STORAGE CAPACITOR 1	E06				DIC	CHARCER	ESISTANCE	220		
	OF OUTPUT VOLTAGE		nd Negative					JCCESSIVE			
TOLARTI	OF COTT OF VOLTAGE	OSILIVE A	na recgative					SCHARGES			
COMMENTS											
Device, Premium Earl	ouds										
FUT ORFRATING MOD	250										
EUT OPERATING MOI AV Playback	JE8										
A T Tay Duck											
DEVIATIONS FROM T	EST STANDARD										
No deviations.											
EUT EUNCTIONS MON	UTORED										
EUT FUNCTIONS MON Interruption of Video	ITURED										
Interruption of video											
RESULTS											
No Anomalies Observ	ed During the Test										
Meets NWEMC Perform	mance Criteria	1	1					-5	<u> </u>		
	ibited no change in perf		」 when opera	ating as				-76	110		
specified by the manu	• .			J					9		
									Tested By		-
Air Discharge						1					1
	BER OF DISCHARGES	10	10	10	10	10	10	10	10	10	10
TEST LOCATION	ESD TEST LEVEL (kV)	2	-2	3	-3	4	-4	8	-8	15	-15
All Green Arrows - No	Observation	0	0	T -	Ι.	0	0	0	0	0	0
All Red Arrows - See I					<u> </u>						
Contact Discharge	DED OF BIOCUADOES	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	BER OF DISCHARGES ESD TEST LEVEL (kV)	25 2	25 -2	25 4	25 -4	25 6	25 -6	25 8	25 -8	25 15	25 -15
TEST LOCATION	ESD TEST LEVEL (KV)		<u> </u>	<u> </u>		0	-0	0	-0	13	-13
All Blue Arrows - No C	Observations	0	0	0	0	0	0	0	0	-	-
Horizontal Coupling P		0	0	0	0	0	0	0	0	-	-
Vertical Coupling Plan		0	0	0	0	0	0	0	0	-	-
All Yellow Arrows - Se	ee Below		T T	1	T	1	1	I	I		T .
ITEM # PHENOME	NA OBSERVED										
TILINOWE	MA OBOLIVED										
Key:	- (Dash) = Not Tested				o = No EU	T response	observed				





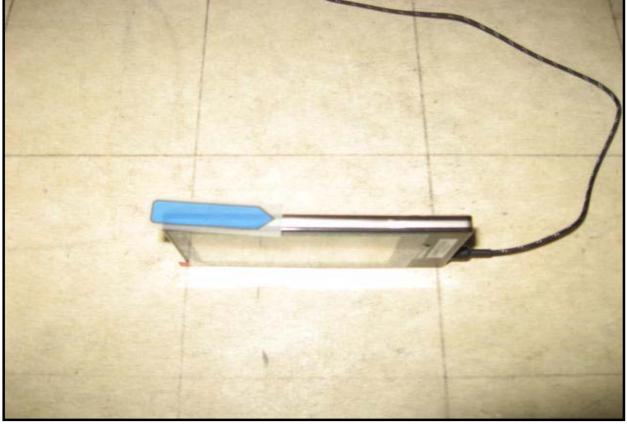




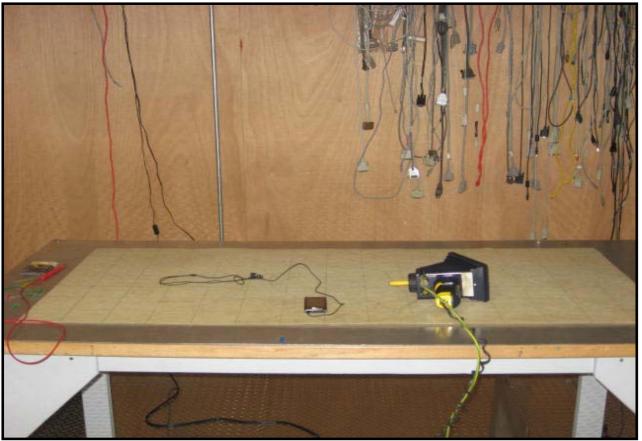








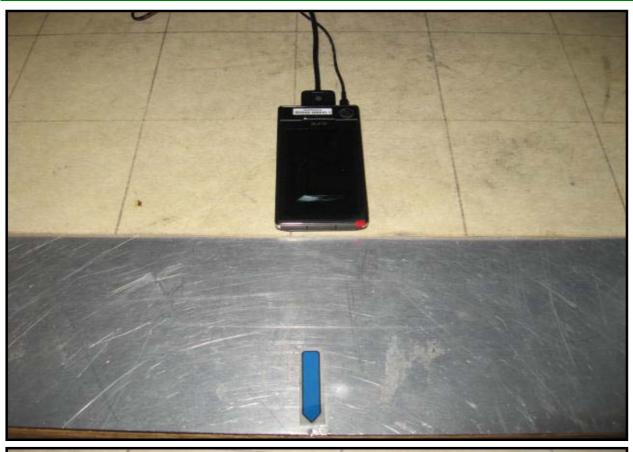








NORTHWEST EMC			E	SD DA	ΓA SHE	ET					IMM 2008.10.1 ES
	Zune HD							V	Vork Order:		6
Serial Number:										06/05/09	
	Microsoft Corporation							Те	mperature: Humidity:	22.6 °C	
Project:	James Wooten			Config. #	. 2			Baron	numidity:		
	Travis Rychener				: 230VAC/5	0Hz		Daion	Job Site:		
TEST SPECIFICATION											
Specification:	EN 55024:1998 (Amend	ed by A1:	2001 and A	2:2003)		Method:	IEC 61000-	4-2:2008			
TEST DADAMETERS											
TEST PARAMETERS	STORAGE CAPACITOR 1	50nf				DIS	CHARGE RE	SISTANCE	220 ohme		
	OF OUTPUT VOLTAGE		nd Negative	`			ETWEEN SU				
TOLARTI	OF COTT OF VOLIACE	OSILIVE AI	na negative		_			CHARGES			
COMMENTS											
EUT OPERATING MOI AV Playback DEVIATIONS FROM T		I-8CB-A r	ev S3 sn: 00	U248700575	52						
No deviations.											
Interruption of Video	NITORED										
RESULTS											
No Anomalies Observ	ed During the Test										
	<u> </u>										
Meets NWEMC Perform Criteria - The EUT exh specified by the manu	ibited no change in perf	1 ormance] when opera	nting as				7	go		
opcomou by the mana									Tested By		_
Air Discharge											
	BER OF DISCHARGES	10	10	10	10	10	10	10	10	10	10
	ESD TEST LEVEL (kV)	2	-2	3	-3	4	-4	8	-8	15	-15
TEST LOCATION All Green Arrows - No	Observation	0	l 0	Τ -	Τ.	T 0	0	0	0	0	0
All Red Arrows - See I											
7 11.00 7 0 0.00 1			1	1							
Contact Discharge											
	BER OF DISCHARGES	25	25	25	25	25	25	25	25	25	25
	ESD TEST LEVEL (kV)	2	-2	4	-4	6	-6	8	-8	15	-15
TEST LOCATION All Blue Arrows - No C	Observations	0		Го	1 0	T		0		Ι.	-
Horizontal Coupling P		0	0	0	0	0	0	0	0	-	-
Vertical Coupling Plan		0	0	0	0	0	0	0	0	-	-
All Yellow Arrows - Se	ee Below			•							
ITEM # PHENOME	NA OBSERVED										
Key:	- (Dash) = Not Tested				o = No EU	T response	observed				
The same of the sa	(Buon) - Not Tested				TO LU	T-response	OBOCI VCU				







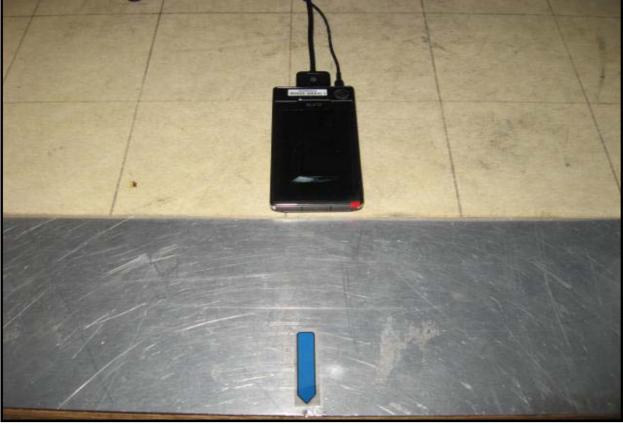














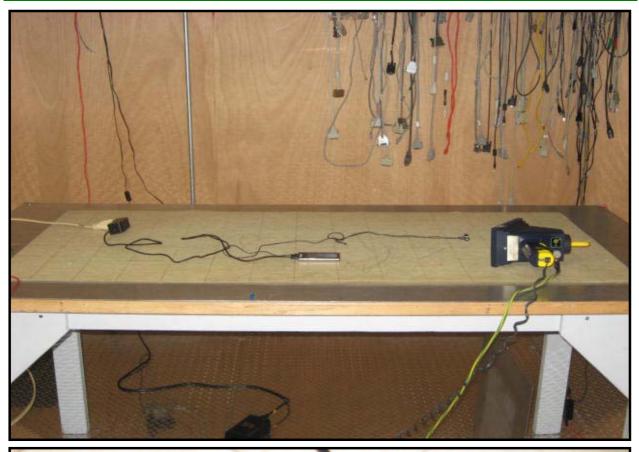














NORTHWEST EMC			E	SD DAT	ΓA SHE	EΤ					IMM 2008.10.1 ES
	Zune HD							V	Vork Order:	MCSO1426	3
Serial Number:	00031391815									06/05/09	
Customer:	Microsoft Corporation							Te	mperature:		
	James Wooten			0 5 "	lo.			_	Humidity:		
Project:				Config. #	230VAC/5	011-		Baron	netric Pres.: Job Site:		
TEST SPECIFICATION	Travis Rychener			Power	. 230VAC/3	UNZ			Job Site.	3003	
	EN 55024:1998 (Amend	ed by A1	2001 and Δ	2.2003)		Method:	IEC 61000-	4-2-2008			
•	211 0002-1: 1000 (Famoria	ou by Att.	2001 una 7	2.2000)		motriou.	120 01000	+ L.L000			
TEST PARAMETERS	STODACE CADACITOD	F0				DIC	CHARGE RI	CICTANCE	220		
	STORAGE CAPACITOR OF OUTPUT VOLTAGE		nd Magative				ETWEEN SU				
PULARITT	OF OUTPUT VOLTAGE	ositive a	nu Negative	,		IIIVIE D		SCHARGES			
COMMENTS							Dic	SCHARGES			
	uds Sync cable, Laptop										
EUT OPERATING MOD											
Syncing to Laptop	JEJ										
cynomy to Euptop											
DEVIATIONS FROM TI	EST STANDARD										
	UTORER										
EUT FUNCTIONS MON Interruption of Video	ITORED										
RESULTS											
No Anomalies Observ	ed During the Test										
Meets NWEMC Perfort Criteria - The EUT exh specified by the manu	ibited no change in peri	1 formance] when opera	ating as				7	Tested By		-
Air Diocharge									rested by		
Air Discharge	BER OF DISCHARGES	10	10	10	10	10	10	10	10	10	10
	ESD TEST LEVEL (kV)	2	-2	3	-3	4	-4	8	-8	15	-15
TEST LOCATION	LOD ILOI LLILL (KI)					_	-				
All Green Arrows - No	Observation	0	0	-	-	Т o	0	0	0	0	0
All Red Arrows - See E	Below				•						
Contact Discharge											
NUM	BER OF DISCHARGES	25	25	25	25	25	25	25	25	25	25
	ESD TEST LEVEL (kV)	2	-2	4	-4	6	-6	8	-8	15	-15
TEST LOCATION											
All Blue Arrows - No C		0	0	0	0	0	0	0	0	-	-
Horizontal Coupling P		0	0	0	0	0	0	0	0	-	-
Vertical Coupling Plan		0	0	0	0	0	0	0	0	-	-
All Yellow Arrows - Se	e Below		1	1	т —	T	1	l I	Г		l I
ITEM# PHENOME	NA OBSERVED										
Key:	- (Dash) = Not Tested				o = No EU	IT response	observed				



























NORTHWEST EMC				E	SD DAT	A SHE	ΕT					IMM 2008.10.17 ES
	EUT:	Zune HD							V	Vork Order:	MCSO1426	3
		00031391815								Date:	06/05/09	
		Microsoft Corporation							Те	mperature:		
		James Wooten				I_			_	Humidity:	41%	
	Project:	None Travis Rychener			Config. #:	230VAC/50	\U-		Barom	netric Pres.: Job Site:		
TEST SPEC					rower.	230 VAC/30	ли			Job Site.	3003	
		EN 55024:1998 (Amend	ed by A1:	2001 and A2	2:2003)		Method:	IEC 61000-	4-2:2008			
			· · · · ·									
TEST PARA	AMETERS											
		TORAGE CAPACITOR						CHARGE RI				
P	POLARITY (OF OUTPUT VOLTAGE	Positive ar	nd Negative			TIME BI	ETWEEN SI				
COMMENT	0							DIS	SCHARGES	i		
COMMENTS Device, HDI		d AV Cable to TV, AV d	ock sn: 09	1800046, D	elta PS mn:	DPSN-8CB	-A rev S3 sı	n: 00248700	5752			
EUT OPERA	ATING MOD	DES										
AV Playbac	k, 720p											
DEVIATION	IO EDOM T											
No deviatio		EST STANDARD										
No deviatio	nis.											
EUT FUNCT	TIONS MON	IITORED										
Interruption		ITORES										
RESULTS												
Anomalies	Observed -	See Data Below										
Criteria - The specified by	he EUT exh y the manu	nance Criteria ibited a change in perfo facturer; intervention w			-				7	Tested By		-
Air Dischar	ge											
		BER OF DISCHARGES	10	10	10	10	10	10	10	10	10	10
		BER OF DISCHARGES ESD TEST LEVEL (kV)	10 2	10 -2	10 3	10 -3	10 4	10 -4	10 8	10 -8	10 15	10 -15
TEST LOCA	ATION	ESD TEST LEVEL (kV)										
TEST LOCA	ATION Arrows - No	Observation										
TEST LOCA All Green A All Red Arro	ATION Arrows - No	Observation	2	-2			4	-4	8	-8	15	-15
TEST LOCA All Green A All Red Arro HDMI Port Power Butto	ATION Arrows - No Yows - See E	Observation			3							
TEST LOCA All Green A All Red Arro HDMI Port Power Butto Optical Port	ATION Arrows - No Yows - See E	Observation	0	-2	3		0	-4	8	-8	15 A	-15
TEST LOCA All Green A All Red Arro	ATION Arrows - No Yows - See E	Observation	0 0	-2 0 0		-3 - -	0 0	- 4 0 0	0 0	-8 0 0	15 A A	-15 A A
TEST LOCA All Green A All Red Arro HDMI Port Power Butto Optical Port	ATION Arrows - No Yows - See E	Observation	0 0 0	-2 0 0		-3 - - -	0 0	-4 0 0	0 0	-8 0 0	15 A A A	-15 A A A
TEST LOCA All Green A All Red Arro HDMI Port Power Butto Optical Port	ATION Arrows - No Yows - See E	Observation	0 0 0	-2 0 0		-3 - - -	0 0	-4 0 0	0 0	-8 0 0	15 A A A	-15 A A A
TEST LOCA All Green A All Red Arro HDMI Port Power Butto Optical Port	ATION Arrows - No Yows - See E	Observation	0 0 0	-2 0 0		-3 - - -	0 0	-4 0 0	0 0	-8 0 0	15 A A A	-15 A A A
TEST LOCA All Green A All Red Arro HDMI Port Power Butto Optical Port AV Port	ATION Arrows - No ows - See E	Observation	0 0 0	-2 0 0		-3 - - -	0 0	-4 0 0	0 0	-8 0 0	15 A A A	-15 A A A
TEST LOCA All Green A All Red Arro HDMI Port Power Butto Optical Port	ATION Arrows - No ows - See E	Observation	0 0 0	-2 0 0		-3 - - -	0 0	-4 0 0	0 0	-8 0 0	15 A A A	-15 A A A
TEST LOCA All Green A All Red Arra HDMI Port Power Butto Optical Port AV Port Contact Dis	ATION Arrows - No ows - See E	Observation Selow	0 0 0	-2 0 0 0		-3	0 0 0	0 0 0	0 0 0 B	-8 0 0 0 B	15 A A A C	-15 A A C
TEST LOCA All Green A All Red Arra HDMI Port Power Butto Optical Port AV Port Contact Dis	ATION Arrows - No ows - See E	Observation Below BER OF DISCHARGES ESD TEST LEVEL (kV)	2 0 0 0 0 0 0	-2 0 0 0 0		-3 - - - - - - 25	0 0 0	-4 0 0 0	0 0 0 B	-8 0 0 0 B	15 A A A C	-15 A A C C
TEST LOCA All Green A All Red Arre HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr	ATION ATION scharge NUM ATION rows - No O	Observation BER OF DISCHARGES ESD TEST LEVEL (kV)	2 0 0 0 0 0 0	-2 0 0 0 0		-3 - - - - - - 25	0 0 0	-4 0 0 0	0 0 0 B	-8 0 0 0 B	15 A A A C	-15 A A C C
TEST LOCA All Green A All Red Arre HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal (1)	ATION scharge NUM ATION rows - No O Coupling P	Observation Gelow BER OF DISCHARGES ESD TEST LEVEL (kV) Observations Inne	2 0 0 0 0 0 0	-2 0 0 0 0		-3 - - - - - - 25	0 0 0	-4 0 0 0	0 0 0 B	-8 0 0 0 B	15 A A A C	-15 A A C C
TEST LOCA All Green A All Red Arro HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal (Vertical Cou	ATION scharge NUM ATION rows - No C Coupling Plupling Plan	Observation Gelow BER OF DISCHARGES ESD TEST LEVEL (kV) Observations lane e	2 0 0 0 0 0 0	-2 0 0 0 0		-3 - - - - - - 25	0 0 0	-4 0 0 0	0 0 0 B	-8 0 0 0 B	15 A A A C	-15 A A C C
TEST LOCA All Green A All Red Arro Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal Co All Yellow A	Scharge NUM ATION ATION Coupling Plupling Plan Arrows - See	BER OF DISCHARGES ESD TEST LEVEL (kV) BER OF DISCHARGES ESD TEST LEVEL (kV) Deservations lane e e e Below	2 0 0 0 0	-2 0 0 0 0		-3 - - - - - - - 25 -4	0 0 0 0 0	-4 0 0 0 0	0 0 0 B	-8 0 0 B 25 -8	15 A A A C	-15 A A C C
TEST LOCA All Green A All Red Arre HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal Co Vertical Cou	scharge NUMI ATION TOWS - NO O Coupling Plan Arrows - Se Coupling Plan Lipping Plan	BER OF DISCHARGES ESD TEST LEVEL (kV) BER OF DISCHARGES ESD TEST LEVEL (kV) Deservations lane e e e Below	2 0 0 0 0 0 0	-2 0 0 0 0		-3 - - - - - - 25	0 0 0	-4 0 0 0	0 0 0 B	-8 0 0 0 B	15 A A C C 25 15	-15 A A C C
TEST LOCA All Green A All Red Arre HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal C Vertical Cou Serial Numb	scharge NUMI ATION TOWS - NO O Coupling Plan Arrows - Se Coupling Plan Lipping Plan	BER OF DISCHARGES ESD TEST LEVEL (kV) BER OF DISCHARGES ESD TEST LEVEL (kV) Deservations lane e e e Below	2 0 0 0 0	-2 0 0 0 0 0 25 -2	3 	-3 -	25 6	-4 0 0 0 0 0 25 -6	0 0 0 B 25 8	-8 0 0 B 25 -8	15 A A C C 25 15	-15 A A C C
TEST LOCA All Green A All Red Arre HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal Cov Vertical Cou Serial Numb Screws	ATION ATION Scharge NUM ATION TOWS - No O Coupling Plane Arrows - Se Coupling Plane Door Plate	BER OF DISCHARGES ESD TEST LEVEL (kV) BER OF DISCHARGES ESD TEST LEVEL (kV) Deservations lane e e e Below	2 0 0 0 0	-2 0 0 0 0 0 25 -2	25 4	-3 	25 6	-4 0 0 0 0 0 25 -6	8 0 0 0 B 25 8	-8 0 0 0 B 25 -8	15 A A C C 25 15	-15 A A C 25 -15
TEST LOCA All Green A All Red Arre HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal C Vertical Cou Serial Numb	ATION ATION Scharge NUM ATION TOWS - No O Coupling Plane Arrows - Se Coupling Plane Doubling Plane	BER OF DISCHARGES ESD TEST LEVEL (kV) BER OF DISCHARGES ESD TEST LEVEL (kV) Deservations lane e e e Below	2 0 0 0 0 0	-2 0 0 0 0 0 25 -2	25 4	-3	25 6	-4 0 0 0 0 0 25 -6	8 0 0 0 B 25 8	-8 0 0 B 25 -8 A A B	15 A A C C 25 15	-15 A A C 25 -15
TEST LOCA All Green A All Red Arre HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal Cov Vertical Cou Serial Numb Screws	ATION ATION Scharge NUM ATION TOWS - No O Coupling Plane Arrows - Se Coupling Plane Doubling Plane	BER OF DISCHARGES ESD TEST LEVEL (kV) BER OF DISCHARGES ESD TEST LEVEL (kV) Deservations lane e e e Below	2 0 0 0 0 0	-2 0 0 0 0 0 25 -2	25 4	-3 	25 6	-4 0 0 0 0 0 25 -6	8 0 0 0 B 25 8	-8 0 0 0 B 25 -8	15 A A C C 25 15	-15 A A C 25 -15
TEST LOCA All Green A All Red Arre HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal Cov Vertical Cou Serial Numb Screws	ATION ATION Scharge NUM ATION TOWS - No O Coupling Plane Arrows - Se Coupling Plane Doubling Plane	BER OF DISCHARGES ESD TEST LEVEL (kV) BER OF DISCHARGES ESD TEST LEVEL (kV) Deservations lane e e e Below	2 0 0 0 0 0	-2 0 0 0 0 0 25 -2	25 4	-3 	25 6	-4 0 0 0 0 0 25 -6	8 0 0 0 B 25 8	-8 0 0 0 B 25 -8	15 A A C C 25 15	-15 A A C 25 -15
TEST LOCA All Green A All Red Arre HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal Co Vertical Cou Serial Numb Screws Side Metal E	scharge NUM ATION TOWS - No O Coupling Plan Arrows - Se Coupling Plan Arrows - Plate Der Plate Bezel	BER OF DISCHARGES ESD TEST LEVEL (kV) BER OF DISCHARGES ESD TEST LEVEL (kV) Deservations Lane e e Below ne	2 0 0 0 0 0	-2 0 0 0 0 0 25 -2	25 4	-3 	25 6	-4 0 0 0 0 0 25 -6	8 0 0 0 B 25 8	-8 0 0 0 B 25 -8	15 A A C C 25 15	-15 A A C 25 -15
TEST LOCA All Green A All Red Arre HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal C Vertical Cou Serial Numb Screws Side Metal E	ATION ATION Scharge NUM ATION TOWS - No O Coupling Plane Arrows - Se Coupling Plane Der Plate Bezel PHENOME	BER OF DISCHARGES ESD TEST LEVEL (kV) BER OF DISCHARGES ESD TEST LEVEL (kV) Beservations Inne e Below The State of the S	2 0 0 0 0 0	-2 0 0 0 0 0 25 -2	25 4	-3 	25 6	-4 0 0 0 0 0 25 -6	8 0 0 0 B 25 8	-8 0 0 0 B 25 -8	15 A A C C 25 15	-15 A A C 25 -15
TEST LOCA All Green A All Red Arre HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal C Vertical Cou Vertical Cou Serial Numb Screws Side Metal E	Scharge NUM ATION ATION ATION ATION Coupling Plane Arrows - Se Coupling Plane Deer Plate Bezel PHENOME Loss Of Signary - No Coupling Plane Loss Of Signary - No Coupling Plane Bezel	BER OF DISCHARGES ESD TEST LEVEL (kV) BER OF DISCHARGES ESD TEST LEVEL (kV) Deservations Lane e e Below ne	2 0 0 0 0 0	-2 0 0 0 0 0 25 -2 A 0 0 0 0 0	25 4 A A A A	-3 	25 6	-4 0 0 0 0 0 25 -6	8 0 0 0 B 25 8	-8 0 0 0 B 25 -8	15 A A C C 25 15	-15 A A C 25 -15
TEST LOCA All Green A All Red Arre HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal C Vertical Cou Vertical Cou Serial Numb Screws Side Metal E	Scharge NUM ATION ATION ATION TOWS - No O Coupling Plane Arrows - Se Coupling Plane Der Plate Bezel PHENOME Loss Of Sig Resets. Us	BER OF DISCHARGES ESD TEST LEVEL (kV) BER OF DISCHARGES ESD TEST LEVEL (kV) BUSINESS AND	2 0 0 0 0 0	-2 0 0 0 0 0 25 -2 A 0 0 0 0 Playing Vid	3 	-3	25 6	-4 0 0 0 0 0 25 -6	8 0 0 0 B 25 8	-8 0 0 0 B 25 -8	15 A A C C 25 15	-15 A A C 25 -15
TEST LOCA All Green A All Green A All Red Arra HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal C Vertical Cou Serial Numb Screws Side Metal E ITEM # A B	Scharge NUM ATION ATION ATION TOWS - No O Coupling Plane Arrows - Se Coupling Plane Der Plate Bezel PHENOME Loss Of Sig Resets. Us	BER OF DISCHARGES ESD TEST LEVEL (kV) Discription BER OF DISCHARGES ESD TEST LEVEL (kV) Discriptions lane e e Below ne NA OBSERVED gnal. Self Recovers er Intervention Required	2 0 0 0 0 0	-2 0 0 0 0 0 25 -2 A 0 0 0 0 Playing Vid	3 	-3	25 6	-4 0 0 0 0 0 25 -6	8 0 0 0 B 25 8	-8 0 0 0 B 25 -8	15 A A C C 25 15	-15 A A C 25 -15
TEST LOCA All Green A All Red Arre HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal C Vertical Cou Vertical Cou Serial Numb Screws Side Metal E	Scharge NUM ATION ATION ATION TOWS - No O Coupling Plane Arrows - Se Coupling Plane Der Plate Bezel PHENOME Loss Of Sig Resets. Us	BER OF DISCHARGES ESD TEST LEVEL (kV) Discription BER OF DISCHARGES ESD TEST LEVEL (kV) Discriptions lane e e Below ne NA OBSERVED gnal. Self Recovers er Intervention Required	2 0 0 0 0 0	-2 0 0 0 0 0 25 -2 A 0 0 0 0 Playing Vid	3 	-3	25 6	-4 0 0 0 0 0 25 -6	8 0 0 0 B 25 8	-8 0 0 0 B 25 -8	15 A A C C 25 15	-15 A A C 25 -15
TEST LOCA All Green A All Red Arro HDMI Port Power Butto Optical Port AV Port Contact Dis TEST LOCA All Blue Arr Horizontal C Vertical Cou All Yellow A Horizontal C Vertical Cou Serial Numb Screws Side Metal E	Scharge NUM ATION ATION ATION TOWS - No O Coupling Plane Arrows - Se Coupling Plane Der Plate Bezel PHENOME Loss Of Sig Resets. Us	BER OF DISCHARGES ESD TEST LEVEL (kV) Discription BER OF DISCHARGES ESD TEST LEVEL (kV) Discriptions lane e e Below ne NA OBSERVED gnal. Self Recovers er Intervention Required	2 0 0 0 0 0	-2 0 0 0 0 0 25 -2 A 0 0 0 0 Playing Vid	3 	-3	25 6	-4 0 0 0 0 0 25 -6	8 0 0 0 B 25 8	-8 0 0 0 B 25 -8	15 A A C C 25 15	-15 A A C 25 -15

o = No EUT response observed

- (Dash) = Not Tested

Key:





































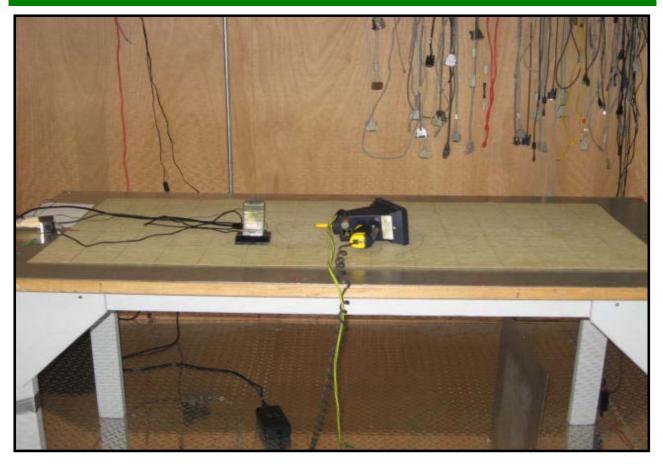


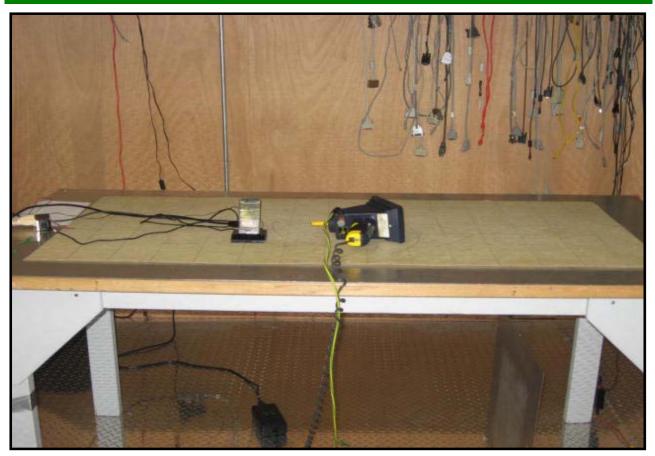












RADIATED IMMUNITY

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

AV Playback 720p

AV Playback, Composite Out

Synicing to laptop

POWER SETTINGS INVESTIGATED

230VAC/50Hz

CONFIGURATIONS INVESTIGATED

MCSO1426 - 4,5,7

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Power Head	Amplifier Research	PH2000	SQH	3/27/2009	12 mo
E-Field Probe	Amplifier Research	FL7006	IEL	10/31/2007	24 mo
Antenna, Log Periodic	EMCO	3144	ALI	NCR	0 mo
RF Power Meter	Amplifier Research	PM2002	SPF	12/8/2008	13 mo
Directional Coupler	Amplifier Research	6080	IRC	12/8/2008	13 mo
RF Amplifier	Amplifier Research	150W1000	TRP	NCR	0 mo
Signal Generator	Agilent	E4422B	TGR	12/9/2008	13 mo

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, a Radiated RF Immunity test was performed according to EN61000-4-3. The EUT was tested with the transmit antenna placed approximately (3) meters from the surfaces of the EUT. The field was first established with no EUT present then maintained at the specified level. If an error is detected, the field strength may have been reduced to a level in which the error disappeared. This would be determined as the threshold of susceptibility. The test was conducted using horizontal and vertical antenna orientations.

NORTHWEST								IMM 2008.10.17
EMC		R	ADIATE	ED IMMUNITY DA	ATA SHE	ET		RI
	Zune HD						Work Order:	MCSO1426
Serial Number:								05/29/09
	Microsoft Corporat	ion					Temperature (°C):	
Attendees:	James Wooten						Relative Humidity:	41%
Project:				Config. #: 7			Bar. Pres. (mb):	
	Travis Rychener			Power: 230VAC/5	0Hz		Job Site:	SU01
TEST SPECIFICATION	S							
Specification:	EN 55024:1998 (Am	nended by A1:2	001 and A	2:2003)	Method:	IEC 61000-4	1-3:2008	
TEST PARAMETERS								
Test Level:		Spec. Level:	3 V/m	Modu	lation Freq.:	1kHz	Sides Tested:	4 Sides
Start Frequency:		op Frequency:			lation Type:		Polarities Tested:	Horz and Vert
Step Size:	1%	Dwell Time:	1 Sec.	Modul	ation Depth:	80%		
COMMENTS Device, Ax cable to ex	ternal speakers, AV	dock sn:09180	00046, Lap	top and monitor				
EUT OPERATING MOD	DES							
Synicing to laptop	<i>-</i> 20							
DEVIATIONS FROM TO No deviations.	EST STANDARD							
EUT FUNCTIONS MON	IITORED							
Interruption in video	IIIORED							
RESULTS								
No Anomalies Observe	ed During the Test							
No operatii	ng frequencies were	e provided by t	he client.					
Meets NWEMC Perform		1 ce when operating	as specified	by the			Flyo	
manufacturer.						=	Tested By	
	Field Strength	Antenna	Side				Toolea By	
Frequency (MHz)	(Volts/meter)	Polarity	Tested	Phenomena Observe	d/Comments	S		

Radiated Immunity





NORTHWEST								IMM 2008.10.17
EMC		R	ADIATE	ED IMMUNITY DA	TA SHE	ĒT		RI
EUT:	Zune HD						Work Order:	MCSO1426
Serial Number:								05/29/09
Customer:	Microsoft Corporati	on					Temperature (°C):	22.6 °C
Attendees:	James Wooten						Relative Humidity:	41%
Project:				Config. #: 4			Bar. Pres. (mb):	
	Travis Rychener			Power: 230VAC/50	Hz		Job Site:	SU01
TEST SPECIFICATION								
Specification:	EN 55024:1998 (Am	ended by A1:2	001 and A	2:2003)	Method:	IEC 61000-4	-3:2008	
TEST PARAMETERS								
Test Level:		Spec. Level:			ation Freq.:		Sides Tested:	
Start Frequency:		p Frequency:	1000MHz		ation Type:		Polarities Tested:	Horz and Vert
Step Size:	1%	Dwell Time:	1 Sec.	Modula	tion Depth:	80%		
COMMENTS Device, HDMI and AV	cable to TV, AV dock	sn:09180004	6, Delta PS	mn: DPSN-8CB-A rev	S3 sn: 0083	7702385		
EUT OPERATING MOD AV Playback, Compos								
DEVIATIONS FROM TE								
No deviations.	231 STANDARD							
EUT FUNCTIONS MON	IITOPED							
Interruption in video	ITORED							
RESULTS								
No Anomalies Observ	ed During the Test							
110 7 thomanos Observ	ou Burning the reet							
No operatii	ng frequencies were	provided by t	he client.					
Meets NWEMC Perform	nance Criteria	1				5		
Criteria - The EUT exhibited	no change in performano	e when operating	as specified	bv the		-	+ (10	
manufacturer.	g p	g		-,		_	7	
						·	Tested By	
	Field Strength	Antenna	Side					
Frequency (MHz)	(Volts/meter)	Polarity	Tested	Phenomena Observed	I/Comments	i		

Radiated Immunity





NORTHWEST EMC		R.	ADIATE	D IMMUNITY DA	TA SHEET	Г		IMM 2008.10.17 RI
	laa							
	Zune HD						Work Order:	
Serial Number:								05/29/09
	Microsoft Corporation	1					Temperature (°C):	
Attendees: Project:	James Wooten			Config. #: 5			Relative Humidity:	
	Travis Rychener			Power: 230VAC/50	u -		Bar. Pres. (mb): Job Site:	
TEST SPECIFICATION				Power: 230VAC/50	пz		Job Site:	5001
	EN 55024:1998 (Amen	dod by A1.20	001 and A1	1.2002)	MothodulE	C 61000-4-	2,2000	
Specification:	EN 35024: 1996 (Allien	ded by A1.20	JU I aliu Az	2.2003)	Metriod. IE	C 61000-4-	3.2006	
TEST PARAMETERS								
Test Level:	>= 10 V/m	pec. Level: 3	3 V/m	Moduls	tion Freq.: 1	VH2	Sides Tested:	1 Sides
Start Frequency:		Frequency: 1			ation Type: A		Polarities Tested:	
Start Frequency. Step Size:		Dwell Time: 1			ion Depth: 80		roiailles resieu.	TIOIZ AIIU VEIL
COMMENTS	1 70	owell fille.	1 500 .	Wodula	ion Deptil. Jo	0 70		
	TV, AV dock sn:09180	0046, Delta F	S mn: DP	SN-8CB-A rev S3 sn: 0	837702385			
EUT OPERATING MOD	DEC.							
AV Playback 720p	JES							
DEVIATIONS EDOM T	CCT CTANDADD							
DEVIATIONS FROM TI No deviations.	LOT STANDARD							
EUT FUNCTIONS MON	NITORED							
Interruption in video								
RESULTS	ad Davis with a Tank							
No Anomalies Observ	ed During the Test							
No operation	ng frequencies were p	rovided by th	e client.					
	mance Criteria	1 when operating a	as specified l	by the		_	Flyd	
manufacturer.						_	Tested By	
	Field Strength	Antenna	Side					
Frequency (MHz)	(Volts/meter)	Polarity	Tested	Phenomena Observed	/Comments			

Radiated Immunity





ELECTRICAL FAST TRANSIENT/BURST

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

AV Playback

AV Playback, 720p

POWER SETTINGS INVESTIGATED

230VAC/50Hz

CONFIGURATIONS INVESTIGATED

MCSO1426 - 2,5

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Oscilloscope	Hewlett-Packard	54615B	TOD	12/9/2008	13 mo
EFT Generator	Haefely	PEFT Junior	IBB	6/6/2008	18 mo

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, an EFT/Burst Immunity test was performed. The test is intended to demonstrate the immunity of electrical and electronic equipment when subjected to types of transient disturbances such as those originating from switching transients (interruption of inductive loads, relay contact bounce, etc.). The repetitive fast transient test is a test with bursts consisting of a number of fast transients, coupled into power supply, control and signal ports of electrical and electronic equipment. Significant for the test is short rise time, the repetition rate and the low energy of the transients.

NORTHWEST				E	ET DAT	A CHE	ET					IMM 2008.10.17 EF
EMC				=	FIDAI	A SHE	= 1.					
	Zune HD								W		MCSO1426	
Serial Number:									T		06/04/09	
	Microsoft C James Woo									rature (°C): Humidity:		
Project:		/ten			Config. #:	2				Pres. (mb):		
	Travis Rycl	nener				230VAC/50)Hz			Job Site:		
TEST SPECIFICATION	S											
Specification:	EN 55024:1	998 (Amen	ded by A1:2	2001 and A2	::2003)		Method:	IEC 61000-	4-4:2004			
TEST PARAMETERS												
	eriod Time:	300mS ± 20)%	Duratio	n of Burst:	15mS ±20%	%	Rela	tion of Pow	er Supply:	Asynchron	ous
Risetime of					y of Burst:					.,,		
	e Duration:	50nS ± 30%	, 0									
COMMENTS	ula Dalta D	0 DD0	N OOD A	. 00 00	107005750							
Device,Premium Earb	uds, Delta P	S mn: DPS	N-8CB-A rev	v S3 sn: 002	248/005/52	4						
EUT OPERATING MOD)FS											
AV Playback	,											
,												
DEVIATIONS FROM T	EST STAND	ARD										
No deviations.												
EUT FUNCTIONS MON	IITOPED											
Interruption of Video	ITOKED											
RESULTS												
No Anomalies Observ	ed During th	ne Test										
Meets NWEMC Perfori	nance Crite	ria	1						-5-	<u> </u>		
Criteria - The EUT exh			rformance v	vhen opera	ting as				7	00		
specified by the manu	facturer.								10.54	7		
										Tested By		
1 MINUTE POSITIVE B	LIDOTO AND	A MINUTE	NECATIVE	DUDOTO A	TEACHE	TTIMO						
I MINUTE POSITIVE B	UKS 15 ANI) I MINUIE	NEGATIVE	BUKSISA	II EACH SI	ETTING						
AC/DC												
	E 1	LIN			E 3		TRAL	GRO		ALL L		
1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	
0	0	•	•	•	-	0	0	0	0	0	0	
SIGNAL/CO	ONTROL											
	/a	n	/a	n	/a	n	ı/a	n,	/a	n/	/a	
0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	
-	-	-	-	-	-	-	-	-	-	-	-	
ITEM# PHENOME	NA OBSER\	/ED										
Key:			o = No EU1	response	observed				- = Not test	ed		
·			· · · · · · · · · · · · · · · · · · ·					· · · · · · · · · · · · · · · · · · ·				

NORTHWEST				E	ET DAT	A CHE	-T					IMM 2008.10.17 EF
EMC				=	FIDAI	A SHE	5 U					
	Zune HD								W		MCSO1426	
Serial Number:									T		06/04/09	
	Microsoft C James Woo									ature (°C): Humidity:		
Project:		, ten			Config. #:	2				Pres. (mb):		
	Travis Rycl	hener				230VAC/50)Hz			Job Site:		
TEST SPECIFICATION	IS											
Specification:	EN 55024:1	998 (Amen	ded by A1:2	2001 and A2	::2003)		Method:	IEC 61000-	4-4:2004			
TEST PARAMETERS												
	eriod Time:	300mS ± 20)%	Duratio	n of Burst:	0.75mS ±2	0%	Rela	tion of Pow	er Supply:	Asvnchron	ous
Risetime of					y of Burst:		- , ,				,	
Impuls	e Duration:	50nS ± 30%	, 0									
COMMENTS												
Device,Premium Earb	uds, Delta P	S mn: DPS	N-8CB-A re	v S3 sn: 002	2487005752							
EUT OPERATING MOI	nes											
AV Playback	JES											
DEVIATIONS FROM T	EST STAND	ARD										
No deviations.												
FUT FUNCTIONS MON	UTODED											
EUT FUNCTIONS MON	ITORED											
interruption of video												
RESULTS												
No Anomalies Observ	ed During th	ne Test										
Meets NWEMC Perfor	manaa Crita	wi.a	4							—		
Criteria - The EUT exh			rformance v	vhen onera	tina as				-11	ritt		
specified by the manu		unge m per	ioimanoo i	топ орога	ing do					9		
.,										Tested By		
1 MINUTE POSITIVE E	URSTS ANI	O 1 MINUTE	NEGATIVE	BURSTS A	T EACH SE	ETTING						
AC/DC												
	IE 1	LIN	E 2	LIN	E 3	NEU	TRAL	GRO	UND	ALL L	INES	
1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	
0	0	-	-	-	-	0	0	0	0	0	0	
_												
0101141.40												
SIGNAL/C	JNTROL /a	-	/a	n	lo.		ı/a	-	lo.		10	
0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	
- 0.5 KV	-0.5 KV	0.0 KV	-0.5 KV	0.0 KV	-0.5 KV	0.0 KV	-0.5 KV	0.0 KV	-0.0 KV	0.5 KV	-0.5 KV	
ITEM # PHENOME	NA OBSER	/ED										
Key:			o = No EU1									
									- = Not test	00		

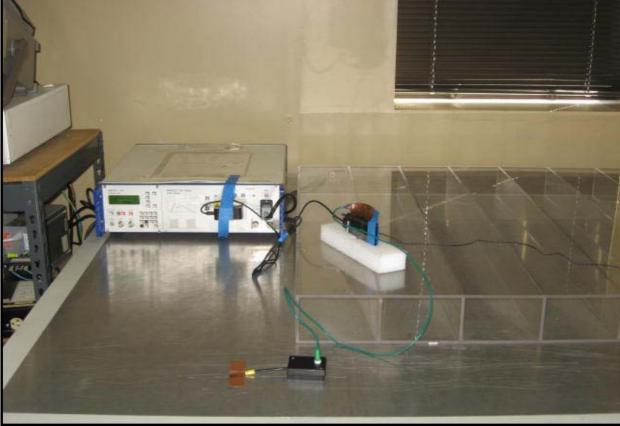
NORTHWEST				-	CT DAT	A CLIE						IMM 2008.10.17 EF
EMC				E	FIDAI	A SHE	= 1					
	Zune HD								W		MCSO1426	
Serial Number:	000313918 ² Microsoft C								T		06/04/09	
	James Woo									rature (°C): Humidity:		
Project:		, ten			Config. #:	2				Pres. (mb):		
	Travis Rycl	nener				230VAC/50)Hz			Job Site:		
TEST SPECIFICATION												
Specification:	EN 55024:1	998 (Amen	ded by A1:2	2001 and A2	2:2003)		Method:	IEC 61000-	4-4:2004			
TEST PARAMETERS												
	eriod Time:	300mS ± 20	1%	Duratio	n of Burst:	15mS ±20%	6	Rela	ation of Pow	er Supply:	Asynchron	ous
Risetime of	one Pulse:	5nS ± 30%			y of Burst:							
	e Duration:	50nS ± 30%	ò									
COMMENTS	ula Dalta D	0 DD0	1 00D A	. 00 000	240700575	<u> </u>						
Device,Premium Earb	uds, Delta P	S mn: DPS	N-8CB-A rev	v S3 sn: 002	248/005/52	2						
EUT OPERATING MOD	DES											
AV Playback												
-												
DEVIATIONS FROM T	EST STAND	ARD										
No deviations.												
EUT FUNCTIONS MON	IITORED											
Interruption of Video												
·												
RESULTS												
Anomalies Observed -	See Data B	elow										
Meets NWEMC Perform	nance Crite	ria	3						1	-		
Criteria - The EUT exh										90		
specified by the manu	facturer; in	ervention v	vas require	d to recove	r.					To at and Day		
										Tested By		
1 MINUTE POSITIVE B	URSTS ANI	1 MINUTE	NEGATIVE	BURSTS A	T EACH SI	ETTING						
AC/DC												
	E 1	LIN		LIN	-2.0 kV	2.0 kV	-2.0 kV		-2.0 kV	2.0 kV		
2.0 kV A	-2.0 kV A	2.0 kV	-2.0 kV	2.0 kV	-2.0 KV	2.0 KV	-2.0 KV	2.0 kV A	-2.0 KV	2.0 KV	-2.0 kV	
_ ^_				_	_		_ ^					
AC/DC												
	E 1	LIN		LIN			TRAL		UND	ALL L		
3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	
Α	Α	-	-	-	-	Α	Α	Α	Α	Α	Α	
	NA OBSER											
A Video Inter	rupted, Fals	e Touchsc	reen Comm	ands								
Key:			o = No EU1	response (observed				- = Not test	ed		

NORTHWEST				-	-T DAT	A OUE						IMM 2008.10.17 FF
EMC				E	FIDAI	A SHE	= 1					
	Zune HD								W		MCSO1426	
Serial Number:	000313918 ^o Microsoft C								T		06/04/09	
	James Woo									rature (°C): Humidity:		
Project:		Jen			Config. #:	2				Pres. (mb):		
	Travis Rycl	hener				230VAC/50)Hz			Job Site:		
TEST SPECIFICATION												
Specification:	EN 55024:1	998 (Amen	ded by A1:2	2001 and A2	::2003)		Method:	IEC 61000-	4-4:2004			
TEST PARAMETERS												
	eriod Time:	300mS ± 20)%	Duratio	n of Burst:	0.75mS ±20	0%	Rela	ation of Pow	er Supply:	Asynchron	ous
Risetime of	one Pulse:	5nS ± 30%			y of Burst:							
	e Duration:	50nS ± 30%	Ď									
COMMENTS	uda Dalta D	O DDO	V 00D A		107005750							
Device,Premium Earb	uds, Delta P	S mn: DPS	N-8CB-A re	v 53 sn: 002	248/005/52							
EUT OPERATING MOI	DES											
AV Playback												
-												
DEVIATIONS FROM T	EST STAND	ARD										
No deviations.												
EUT FUNCTIONS MON	IITORED											
Interruption of Video												
·												
RESULTS												
Anomalies Observed	See Data B	elow										
Meets NWEMC Perfor	mance Crite	ria	3						1	-		
Criteria - The EUT exh										90		
specified by the manu	facturer; in	tervention v	vas require	d to recover	r.					To at and Day		
										Tested By		
1 MINUTE POSITIVE E	URSTS ANI	D 1 MINUTE	NEGATIVE	BURSTS A	T EACH SE	TTING						
AC/DC												
	2014	LIN			E 3 -2.0 kV	2.0 kV	-2.0 kV		-2.0 kV	2.0 kV		
2.0 kV A	-2.0 kV	2.0 kV	-2.0 kV	2.0 kV	-2.0 KV	2.0 KV	-2.0 KV	2.0 kV A	-2.0 KV	2.0 KV	-2.0 kV	
		_	_	_	_		_ ^					
AC/DC												
	E 1	LIN			E 3		TRAL		UND	ALL L		
3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	
Α	Α	-	-	-	-	Α	Α	Α	Α	Α	Α	
	NA OBSER											
A Video Inter	rupted, Fals	se Touchsc	reen Comm	ands								
Key:			o = No EU1	Tresponse (observed				- = Not test	ed		

NORTHWEST												IMM 2008.10.17
EMC				El	FT DAT	A SHE	ET					Er
	: Zune HD								W		MCSO1426	
Serial Number									T		06/04/09	
	: Microsoft (rature (°C): Humidity:		
	: None	oten			Config. #:	2				Pres. (mb):		
	: Travis Ryc	hener				230VAC/50)Hz			Job Site:		
TEST SPECIFICATIO		1000 /4						IEO 04000	4 4 0004			
Specification	: EN 55024:1	1998 (Amen	ded by A1:2	2001 and A2	2:2003)		Method:	IEC 61000-	4-4:2004			
TEST PARAMETERS												
	Period Time:)%	Duratio	n of Burst:	15mS ±20%	6	Rela	ation of Pow	er Supply:	Asynchron	ous
	f one Pulse:			Frequenc	y of Burst:	5kHz						
	se Duration:	50nS ± 30%	0									
COMMENTS Device, Premium Earl	ouds. Delta F	S mn: DPS	N-8CB-A re	v S3 sn: 002	2487005752)						
Dovico,i romiam Lan	oudo, Boila i	O D. O		. 00 011. 002	01 000101	-						
EUT OPERATING MC	DES											
AV Playback												
DEVIATIONS FROM	LEST STAND	APD										
No deviations.	IEST STAND	AND										
EUT FUNCTIONS MO	NITORED											
Interruption of Video												
RESULTS												
Anomalies Observed	- See Data E	Below										
Marata NIMENAO Danta	04		•	İ						-		
Meets NWEMC Perfo Criteria - The EUT ex			3 ormance wi	hen oneratii	na ac				1	not -		
specified by the man										90		
.,	,									Tested By		
1 MINUTE POSITIVE	BURSTS AN	D 1 MINUTE	NEGATIVE	BURSTS A	AT EACH SI	ETTING						
AC/DC												
	NE 1	LIN	E 2	LIN	IE 3	NEU	TRAL	GRO	UND	ALL L	INES	
4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	
A	Α	-	-	-	-	Α	Α	Α	Α	Α	Α	
AC/DC												
	NE 1	LIN	E 2	LIN	E 3	NEU	TRAL	GRO	UND	ALL L	INES	
5.0 kV	-5.0 kV	5.0 kV	-5.0 kV	5.0 kV	-5.0 kV	5.0 kV	-5.0 kV	5.0 kV	-5.0 kV	5.0 kV	-5.0 kV	
-	-	-	-	-	-	-	-	-	-	-	-	
ITEM # PHENOM	ENA OBSER	VED										
A Video Inte	errupted, Fal	se Touchsc	reen Comm	ands								
Key:			o = No EU1	response	observed				- = Not test	ed		

NORTHWEST												IMM 2008.10.17
EMC				E	FT DAT	A SHE	ΞT					EF
	Zune HD								W		MCSO1426	
Serial Number											06/04/09	
	Microsoft C									ature (°C): Humidity:		
Project		oten			Config. #:	2				Pres. (mb):		
	Travis Ryc	hener				230VAC/50	Hz		<u> Duii.</u>	Job Site:		
TEST SPECIFICATION	NS					•						
Specification	EN 55024:1	998 (Amen	ded by A1:2	2001 and A2	2:2003)		Method:	IEC 61000-4	-4:2004			
TEST PARAMETERS	ania d Timas.	200	10/	Dunatia	m of Dunati	0.75mS ±2	00/	Dele	tion of Dav	an Cummbu	A	
	eriod Time: f one Pulse:		J 70		y of Burst:		U 70	Reia	lion of Pow	er Suppry.	Asynchrono	us
	se Duration:		'n	rrequent	y or burst.	TOURITZ						
COMMENTS		00.10 2 007										
Device,Premium Earl	uds, Delta P	S mn: DPS	N-8CB-A re	v S3 sn: 002	2487005752	2						
EUT OPERATING MO	DES											
AV Playback												
DEVIATIONS FROM T	EST STAND	APD										
No deviations.	LOI OIAND	AND										
EUT FUNCTIONS MO	NITORED											
Interruption of Video												
RESULTS	O D-4- F	\-l										
Anomalies Observed	- See Data E	selow										
Meets NWEMC Perfor	mance Crite	ria	3						1	-		
Criteria - The EUT exi	hibited a cha	nge in perf	ormance wi	hen operatii	ng as				7	90		
specified by the man	ufacturer; in	tervention v	vas require	d to recove	r.			_		(
										Tested By		
1 MINUTE POSITIVE I	DIIDOTO ANI	O 4 MINUITE	NEC ATIVE	DUDGTO A	T EACH C	ETTING						
1 WINUTE POSITIVE I	SUKS IS AN	TIMINUTE	NEGATIVE	BUKSISA	II EACH SI	ETTING						
AC/DC												
LII	NE 1	LIN	E 2	LIN	E 3	NEU	TRAL	GRO	JND	ALL L	INES	
4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	
Α	Α	-	-	-	-	Α	Α	Α	Α	Α	Α	
40/00												
AC/DC								000				
	NE 1	LIN			E 3		TRAL	GRO		ALL L		
<u> </u>	n/a │ _	n	a	n	a	- "	/a _	n/:	a _	n/	а _	
		-	-	-	-	-	-				-	
	ENA OBSER											
A Video Inte	rrupted, Fals	se Touchsc	reen Comm	ands								
Key:			o = No EUI	response (observed				- = Not test	ed		
			EU	ooponoc	and or You							





NORTHWEST				E	ET DAT	A SHEI	ET					IMM 2008.10.17 EF
EMC					TIDAI	A SHE	=1					
	Zune HD								W		MCSO1426	
Serial Number:									T		06/04/09	
	Microsoft C James Woo									ature (°C): Humidity:		
Project:		, ten			Config. #:	5				Pres. (mb):		
	Travis Rycl	nener				230VAC/50)Hz			Job Site:		
TEST SPECIFICATION	S	000 (4		004 140				150.04000	4.4.000.4			
Specification:	EN 55024:1	998 (Amen	ded by A1:2	2001 and A2	::2003)		Method:	IEC 61000-4	4-4:2004			
TEST PARAMETERS												
	eriod Time:	300mS ± 20)%	Duratio	n of Burst:	15mS ±20%	6	Rela	tion of Pow	er Supply:	Asynchron	ous
Risetime of				Frequenc	y of Burst:	5kHz						
	e Duration:	50nS ± 30%	Ď									
COMMENTS Device, HDMI cable to	TV AV dock	cn:001900	046 Dolta F	oe mn: DDS	N OCD A r	ov 83 cm: 00	2497005752)				
Device, noivil cable to	IV, AV GOCF	SII.09 1000	040, Deila F	-3 IIIII. DF3	IN-OCD-A II	ev 33 SII. UU	12401003132	4				
EUT OPERATING MOD	DES											
AV Playback, 720p												
DEVIATIONS FROM TI No deviations.	EST STAND	ARD										
No deviations.												
EUT FUNCTIONS MON	IITORED											
Interruption of Video												
RESULTS	ad Duminan Al	- T4										
No Anomalies Observ	ea During tr	ie rest										
Meets NWEMC Perfori			1						1	7		
Criteria - The EUT exh		ange in pe	formance v	vhen opera	ting as				-+ (90		
specified by the manu	tacturer.									Tested By		
										rested by		
1 MINUTE POSITIVE B	URSTS AND	1 MINUTE	NEGATIVE	BURSTS A	T EACH SI	ETTING						
AC/DC	F 4 1		F 0			L	TDAL	000	und I		INFO	
1.0 kV	E 1 -1.0 kV	1.0 kV	-1.0 kV	1.0 kV	E 3 -1.0 kV	1.0 kV	-1.0 kV	GRO 1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	
0	-1.0 KV	1.0 KV	-1.0 KV	1.0 KV	-1.0 KV	0	-1.0 KV	0 0	-1.0 KV	0 0	-1.0 KV	
SIGNAL/CO	ONTROL											
	/a		/a	n,			/a	n/		n/		
0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	
	-	-	-	-	-	-	-	-	-	-	-	
ITEM # PHENOME	NA OBSER\	/ED										
Key:			o = No EU1	response	observed				- = Not test	ed		

NORTHWEST				E	ET DAT	A SHEI	ET					IMM 2008.10.17 EF
EMC					FIDAI	A SHE	= 1					
	Zune HD								W		MCSO1426	
Serial Number:									T		06/04/09	
	Microsoft C James Woo									ature (°C): Humidity:		
Project:		, ten			Config. #:	5				Pres. (mb):		
	Travis Rych	nener				230VAC/50)Hz			Job Site:		
TEST SPECIFICATION												
Specification:	EN 55024:1	998 (Amen	ded by A1:2	2001 and A2	::2003)		Method:	IEC 61000-	4-4:2004			
TEST PARAMETERS												
	eriod Time:	300mS ± 20)%	Duratio	n of Burst:	0.75mS ±2	0%	Rela	tion of Pow	er Supply:	Asvnchrone	ous
Risetime of			.,,		y of Burst:		- , ,				,	
Impuls	e Duration:	50nS ± 30%	0									
COMMENTS												
Device,HDMI cable to	TV, AV dock	sn:091800	046, Delta F	PS mn: DPS	SN-8CB-A re	ev S3 sn: 00)2487005752	2				
EUT OPERATING MOD)FS											
AV Playback, 720p)E3											
DEVIATIONS FROM TI	EST STAND	ARD										
No deviations.												
FUT FUNCTIONS MON	UTABER											
EUT FUNCTIONS MON Interruption of Video	IIIORED											
interruption of video												
RESULTS												
No Anomalies Observ	ed During th	ne Test										
Masta NWEMC Danfam	Cuita	-1-	_	Ì						-		
Meets NWEMC Perform Criteria - The EUT exh			formance v	when oners	tina as				1	TIT .		
specified by the manu		unge in per	TOTTINGTICE V	теп орега	ing as					90		
-,										Tested By		
1 MINUTE POSITIVE B	URSTS AND	1 MINUTE	NEGATIVE	BURSTS A	T EACH SE	TTING						
AC/DC												
	E 1	LIN	F 2	LIN	E 3	NEU	TRAL	GRO	UND	ALL I	INES	
1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	1.0 kV	-1.0 kV	
0	0	-	-	-	-	0	0	0	0	0	0	
-												
SIGNAL/CO									,			
	/a		/a	0.5 kV			/a 051//		/a	0.5 kV		
0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	0.5 kV	-0.5 kV	
		-	-	-	-	-		-	-	-		
ITEM # PHENOME	NA OBSER\	/ED										
				response					- = Not test			
Key:												

NORTHWEST												IMM 2008.10.17
EMC				El	FT DAT	A SHE	ĒΤ					EF
EUT:	Zune HD								W	/ork Order:	MCSO1426	
Serial Number:											06/04/09	
	Microsoft C									rature (°C):		
	James Woo	ten			C	le .				Humidity:		
Project:	Travis Rych	nener			Config. #:	230VAC/50	Hz		ваг.	Pres. (mb): Job Site:		
TEST SPECIFICATION		iciici			T GWGI.	200 17 10/00	112	Į.		oob oito.	0000	
Specification:		998 (Amen	ded by A1:2	2001 and A2	2:2003)		Method:	IEC 61000-4	4-4:2004			
TEST PARAMETERS	eriod Time:	200me + 20	10/	Duratio	n of Buret	15mS ±20%	/	Dolo	tion of Dou	or Cumpbu	Acumahrana	
Risetime of			J 70		cy of Burst:		0	Keia	ilion of Fow	rer Suppry:	Asynchrono	us
	e Duration:		0	Troquenc	y or Burot.	OKI IZ						
COMMENTS												
Device, HDMI cable to	TV, AV dock	sn:091800	046, Delta I	PS mn: DPS	SN-8CB-A re	ev S3 sn: 00	2487005752	2				
EUT OBERATING MOD	NEO.											
EUT OPERATING MOD AV Playback, 720p	JES .											
AV I layback, 120p												
DEVIATIONS FROM T	EST STANDA	ARD										
No deviations.												
FUT FUNCTIONS MON	UTODED											
EUT FUNCTIONS MON Interruption of Video	ITORED											
interruption of video												
RESULTS												
No Anomalies Observ	ed During th	e Test										,
Meets NWEMC Perfori	mance Crite	ria	1	1					-5	<u> </u>		
Criteria - The EUT exh			formance v	when opera	ting as				7	110		
specified by the manu	facturer.	• .		•	•			_	1000 1.0	7		
										Tested By		
4 MINUTE BOOKEN'S B												
1 MINUTE POSITIVE B	URS IS AND	1 MINUIE	NEGATIVE	BURSIS	AT EACH SI	ITING						
AC/DC												
LIN	IE 1	LIN	E 2	LIN	IE 3	NEU'	TRAL	GRO	UND	ALL I	INES	
2.0 kV	-2.0 kV	2.0 kV	-2.0 kV	2.0 kV	-2.0 kV	2.0 kV	-2.0 kV	2.0 kV	-2.0 kV	2.0 kV	-2.0 kV	
0	0	-	-	-	-	0	0	0	0	0	0	
AC/DC												
	E 1	LIN	E 2	LIN	IE 3	NEU'	TRAL	GRO	UND	ALL I	INES	
3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	
0	0	-	-	-	-	0	0	0	0	0	0	
ITEM # PHENOME	NA OBSERV	/ED										
Key:			o = No EU	T response	obser <u>ved</u>				- = Not test	ed		

NORTHWEST												IMM 2008.10.17
EMC				El	FT DAT	A SHE	ĒΤ					EF
EUT:	Zune HD								W	ork Order:	MCSO1426	
Serial Number:											06/04/09	
	Microsoft C									rature (°C):		
	James Woo	ten			C	le .				Humidity:		
Project:	Travis Rych	nener			Config. #:	230VAC/50	Hz		ваг.	Pres. (mb): Job Site:		
TEST SPECIFICATION		ionoi			T GWGI.	2001710700	112	<u> </u>		oob oito.	0001	
Specification:		998 (Amen	ded by A1:2	2001 and A2	2:2003)		Method:	IEC 61000-4	4-4:2004			
TEST PARAMETERS	eriod Time:	200mc + 20	10/	Duratio	n of Buret	0.75mS ±20	00/	Dolo	tion of Dou	or Cumpbu	Acumahrana	
Risetime of			7/0		cy of Burst:		J /0	Keia	ILIOII OI FOW	rei Suppiy.	Asynchrono	us
	e Duration:		0	Troquenc	y or Burot.	TOOKITE						
COMMENTS												
Device, HDMI cable to	TV, AV dock	sn:091800	046, Delta I	PS mn: DPS	SN-8CB-A re	ev S3 sn: 00	2487005752	2				
FUT ODEDATING MOD)Ee											
EUT OPERATING MOD AV Playback, 720p	JES .											
AV I layback, 720p												
DEVIATIONS FROM T	EST STANDA	ARD										
No deviations.												
FUT FUNCTIONS MON	UTODED											
EUT FUNCTIONS MON Interruption of Video	ITORED											
interruption of video												
RESULTS												
No Anomalies Observ	ed During th	e Test										,
Meets NWEMC Perfori	mance Crite	ria	1	1					-5	<u> </u>		
Criteria - The EUT exh			formance v	when opera	ting as				7	110		
specified by the manu	facturer.	• .		•	•				1353	7		
										Tested By		
4 MINUTE BOOKEN'S B												
1 MINUTE POSITIVE B	URS IS AND	1 MINUIE	NEGATIVE	BURSIS	AT EACH SI	ITING						
AC/DC												
LIN	IE 1	LIN	E 2	LIN	IE 3	NEU'	TRAL	GRO	UND	ALL I	INES	
2.0 kV	-2.0 kV	2.0 kV	-2.0 kV	2.0 kV	-2.0 kV	2.0 kV	-2.0 kV	2.0 kV	-2.0 kV	2.0 kV	-2.0 kV	
0	0	-	-	-	-	0	0	0	0	0	0	
AC/DC												
	E 1	LIN	E 2	LIN	IE 3	NEU'	TRAL	GRO	UND	ALL I	INES	
3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	3.0 kV	-3.0 kV	
0	0	-	-	-	-	0	0	0	0	0	0	
ITEM # PHENOME	NA OBSERV	/ED										
Key:			o = No EU1	T response	obser <u>ved</u>				- = Not test	ed		

NORTHWEST												
EMC				El	FT DAT	A SHEE	EΤ					IMM 2008.10.17 EF
								1				
EUT: Serial Number:	Zune HD	16							W		MCSO1426 06/04/09	
	Microsoft C								Temper	ature (°C):		
	James Woo									Humidity:		
Project:					Config. #:				Bar.	Pres. (mb):		
Tester: TEST SPECIFICATION	Travis Rycl	nener			Power:	230VAC/50	Hz			Job Site:	SU03	
Specification:		998 (Amen	ded by A1·2	2001 and Δ2	.2003)		Method:	IEC 61000-4	1-4-2004			
Ороспольски					,							
TEST PARAMETERS												
	eriod Time:)%			15mS ±20%	%	Rela	tion of Pow	er Supply:	Asynchrono	us
Risetime of	one Puise: e Duration:		<u>'</u>	Frequenc	y of Burst:	SKHZ						
COMMENTS	buration.	30110 2 307	0									
Device,HDMI cable to	TV, AV dock	sn:091800	046, Delta I	PS mn: DPS	N-8CB-A re	ev S3 sn: 00	2487005752	2				
EUT OPERATING MOD AV Playback, 720p	DES											
AV Flayback, 720p												
DEVIATIONS FROM T	EST STAND	ARD										
No deviations.												
EUT FUNCTIONS MON	UTORER											
Interruption of Video	IIIOKED											
interruption of video												
RESULTS												
Anomalies Observed -	See Data B	elow										
Meets NWEMC Perfori	nance Crite	ria	3						1	-		
Criteria - The EUT exh									+	90		
specified by the manu	facturer; int	tervention v	vas require	d to recove	r.			-		Tooted Dv		
										Tested By		
1 MINUTE POSITIVE B	URSTS AND	1 MINUTE	NEGATIVE	BURSTS A	T EACH SI	ETTING						
4.0/D0												
AC/DC	E 1	LIN	E 2	LIN	IE 3	NEII	TRAL	GRO	IIND	ΔΙΙΙ	INES	
4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	
Α	Α	•	•	-	-	Α	Α	Α	Α	Α	Α	
											<u>.</u>	
A C/DC												
AC/DC	E 1	LIN	F 2	LIN	IE 3	NEU	TRAL	GRO	UND	ALL I	INFS	
5.0 kV	-5.0 kV	5.0 kV	-5.0 kV	5.0 kV	-5.0 kV	5.0 kV	-5.0 kV	5.0 kV	-5.0 kV	5.0 kV	-5.0 kV	
-	-	-	-	-	-	-	-	-	-	-	-	
<u>-</u>												
ITEM # PHENOME	NA OBSER\	/ED										
A Video Inter	rupted, Fals	se Touchsc	reen Comm	ands								
Kovu			o = No EH	- Kooneyee	o books and				= Notdood	ad .		
Key:			U = NO EU I	response	observed				- = Not test	ea		

NORTHWEST												
				EI	FT DAT	A SHEE	EΤ					IMM 2008.10.17 EF
EMC					. 5,	7. O.I.						
EUT: Serial Number:	Zune HD								W		MCSO1426 06/04/09	
	Microsoft C								Temper	rature (°C):		
Attendees:										Humidity:		
Project:					Config. #:				Bar.	Pres. (mb):		
	Travis Ryc	nener			Power:	230VAC/50	Hz			Job Site:	SU01	
TEST SPECIFICATION Specification:		008 (Amon	dod by A1:3	2001 and A2	.2002)		Mothod	IEC 61000-4	1.4:2004			
ореспісаціон.	LIN 33024. I	330 (Allieli	ueu by A1.2	LOUI AIIU AZ	2003)		wethou.	ILC 01000	-4.2004			
TEST PARAMETERS												
	eriod Time:		0%			0.75mS ±20	0%	Rela	tion of Pow	er Supply:	Asynchrono	us
Risetime of			,	Frequenc	y of Burst:	100kHz						
COMMENTS	e Duration:	50nS ± 30%	6									
Device,HDMI cable to	TV. AV doci	c sn:091800	046. Delta I	PS mn: DPS	N-8CB-A r	ev S3 sn: 00	2487005752	2				
201100,112 00.010 10	, , ,		,					_				
EUT OPERATING MOD)ES											
AV Playback, 720p												
DEVIATIONS FROM TE	EST STAND	APD										
No deviations.	-OI OIAND	AILD										
EUT FUNCTIONS MON	IITORED											
Interruption of Video												
RESULTS												
Anomalies Observed -	See Data E	elow										
Masta NWEMC Danfam	Cuita		_	1						-		
Meets NWEMC Perform Criteria - The EUT exh	nance Crite ibited a cha	rıa nae in nerf	ormance w	hen oneratii	na as				#1	not -		
specified by the manu										4		
	•		-							Tested By		
1 MINUTE POSITIVE B	URSTS ANI	O 1 MINUTE	NEGATIVE	BURSTS A	T EACH S	ETTING						
AC/DC												
LIN	E 1	LIN	IE 2	LIN	E 3	NEU ⁻	TRAL	GRO	UND	ALL L	INES	
4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	4.0 kV	-4.0 kV	
Α	Α	-	-	-	-	Α	Α	Α	Α	Α	Α	
AC/DC												
LIN	E 1	LIN	IE 2	LIN	E 3	NEU'	TRAL	GRO	UND	ALL L	INES	
n		n	/a	n,	/a		/a	n/	а	n,		
-	-		-	-	-	-	-	-	-	-	-	
ITEM # PHENOME	NA OBSER	/ED										
A Video Inter	rupted, Fals	se Touchso	reen Comm	ands								
Key:			o = No EU1	response (observed				- = Not test	ed		







SURGE

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

AV Playback

AV Playback, 720p

POWER SETTINGS INVESTIGATED

230VAC/50Hz

CONFIGURATIONS INVESTIGATED

MCSO1426 - 2,5

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Surge Generator	Shaffner	NSG 2050 / PNW 2050	IBO	6/6/2008	18 mo
CDN	Shaffner	CDN 131	IOE	NCR	0 mo
Oscilloscope	Hewlett-Packard	54615B	TOD	12/9/2008	13 mo

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, a Surge Immunity test was performed. The task of the defined laboratory test is to find the reaction of the EUT under specified operational conditions caused by surge voltages from switching and lightning effects at certain threat levels.

The major mechanisms by which lightning produces surge voltages are the following:

- a) A direct lightning stroke to an external circuit (outdoor) injecting high currents producing voltages by either flowing through earth resistance or flowing through the impedance of the external circuit;
- b) An indirect lightning stroke (i.e. a stroke between or within clouds or to nearby objects which produces electromagnetic fields) that induces voltages/currents on the conductors outside and/or inside a building; Lightning earth current flow resulting from nearby direct-to-earth discharges coupling into the common earth paths of the earthing system of the installation.

NORTHWEST EMC			SU	RGE DA	TA SH	EET				IMM 2008.10.17 SU
	(
	Zune HD							V	Vork Order:	
Serial Number:	Microsoft Corporation							Tompo	rature (°C):	06/02/09
	James Wooten								e Humidity:	
Project:				Config. #:	2				Pres. (mb):	
	Travis Rychener				230VAC/50	Hz			Job Site:	
TEST SPECIFICATION										
	EN 55024:1998 (Amend	ed by A1:	2001 and A2	2:2003)		Method:	IEC 61000-	4-5:2005		
TEST PARAMETERS										
OPE	EN CIRCUIT VOLTAGE, I	RISETIME:	1.2 us ± 30	%					RISETIME:	
						TIME	BETWEEN	SUCCESIV	E PULSES:	20 sec.
	IT VOLTAGE, TIME TO 1	/2-VALUE	50 us ± 20%	%	SH	ORT-CIRCU	IT CURREN	IT TIME TO	1/2-VALUE	20 us ± 20%
COMMENTS										
Device, Premium earb	uds, sync cable, Delta F	'S mn: DP	SN-8CB-A r	ev S3 sn: 0)837702385	i				
EUT OBERATIVO MOI	250									
EUT OPERATING MOI	DES									
AV Playback										
DEVIATIONS EDOM T	FOT OTANDADD									
DEVIATIONS FROM T No deviations.	EST STANDARD									
No deviations.										
FUT FUNCTIONS MON	UTODED									
EUT FUNCTIONS MON	NITORED									
Interruption of Video										
RESULTS										
	and Duminan than Tant									
No Anomalies Observ	ed During the Test									
	- · · · · · · · · · · · · · · · · · · ·		1					_	-	
Meets NWEMC Perfor		<u>1</u>	1					1	11	
	ibited no change in peri	ormance	wnen opera	ting as				7 "	90	
specified by the manu	itacturer.									
									Tested By	
			N.	4a. F a						
			No	ote: 5 surge	s each sett	ing				
	COMMON MODE HIGH	LINE TO (ing				
	COMMON MODE HIGH		ROUND (12	2 ohm Impe	dance)		2.0	+4.0	40	
		+0.5	ROUND (12 -0.5	2 ohm Impe +1.0	dance) -1.0	+2.0	-2.0	+4.0	-4.0	
	0 PHASE	+0.5 0	ROUND (12 -0.5	2 ohm Impe +1.0	dance) -1.0	+2.0	0	-	-	
	0 PHASE 90 PHASE	+0.5 0	6ROUND (12 -0.5 0	2 ohm Impe +1.0 0	dance) -1.0 0	+2.0 0 0	0	-	-	
	0 PHASE 90 PHASE 180 PHASE	+0.5 0 0	GROUND (12 -0.5 0	2 ohm Impe +1.0 0	dance) -1.0 0 0	+2.0 0 0	0 0 0	- - -		
	0 PHASE 90 PHASE	+0.5 0	6ROUND (12 -0.5 0	2 ohm Impe +1.0 0	dance) -1.0 0	+2.0 0 0	0	-	-	
	0 PHASE 90 PHASE 180 PHASE 270 PHASE	+0.5 0 0 0	-0.5 0 0 0	2 ohm Impe +1.0 0 0	dance) -1.0 0 0 0 0	+2.0 0 0	0 0 0	- - -		
	0 PHASE 90 PHASE 180 PHASE	+0.5 0 0 0	0.5 0 0 0 0 0 0	2 ohm Impe	dance) -1.0 0 0 0 0 adance)	+2.0 0 0 0	0 0 0	- - -	- - -	
	0 PHASE 90 PHASE 180 PHASE 270 PHASE	+0.5 0 0 0 0 LINE TO G +0.5	GROUND (12 -0.5 0 0 0 0 ROUND (12	2 ohm Impe +1.0 0 0 0 0	dance) -1.0 0 0 0 0 dance) -1.0	+2.0 0 0 0 0	0 0 0 0	- - - - +4.0	-4.0	
	0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE	+0.5	GROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5	2 ohm Impe +1.0 0 0 0 0 0	dance) -1.0 0 0 0 0 0 dance) -1.0	+2.0 0 0 0 0 0 +2.0	0 0 0 0	+4.0	-4.0	
	0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE	+0.5 0 0 0 0 0 LINE TO G +0.5 0	GROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5	2 ohm Impe +1.0 0 0 0 0 0 c c c c c c c c c c c c c c	dance) -1.0 0 0 0 0 dance) -1.0 0	+2.0 0 0 0 0 0 +2.0 0	0 0 0 0	- - - - +4.0	-4.0	
	0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE	+0.5 0 0 0 0 +0.5 0 +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0	+2.0 0 0 0 0 0 +2.0 0 0	0 0 0 0	+4.0	-4.0	
	0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE	+0.5 0 0 0 0 0 LINE TO G +0.5 0	GROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5	2 ohm Impe +1.0 0 0 0 0 0 c c c c c c c c c c c c c c	dance) -1.0 0 0 0 0 dance) -1.0 0	+2.0 0 0 0 0 0 +2.0 0	0 0 0 0	+4.0	-4.0	
	0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE	+0.5 0 0 0 0 1 LINE TO G +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 8ROUND (12 -0.5 0	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	+2.0 0 0 0 0 +2.0 0 0	0 0 0 0	+4.0	-4.0	
	0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE	+0.5 0 0 0 LINE TO G +0.5 0 0 HIGH LINE	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0	2 ohm Impe +1.0 0 0 0 0 0 0 0 1 ohm Imper +1.0 0 0 0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 dance) 0 0 0 Impedance	+2.0 0 0 0 0 0 +2.0 0 0 0	-2.0 0 0	+4.0	-4.0 	
	0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 HIGH LINE +0.5	ROUND (12 -0.5 0 0 0 0 8ROUND (12 -0.5 0 0	2 ohm Imper +1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 stance) -1.0 0 0 timpedance -1.0	+2.0 0 0 0 0 0 +2.0 0 0 0 +2.0	-2.0 0 0 0	+4.0	-4.0 	
	0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE DIFFERENTIAL MODE	+0.5	ROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5 0 0	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 limpedance -1.0 0	+2.0 0 0 0 0 0 +2.0 0 0 0 0 0 0 0 0 0 0 0 0 0	-2.0 0 0 -2.0 0 0 0	+4.0	-4.0 	
	0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE DIFFERENTIAL MODE 0 PHASE 90 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0	ROUND (12 -0.5 0 0 0 0 -0.5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 limpedance -1.0 0 0	+2.0 0 0 0 0 +2.0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0	+4.0	-4.0 	
	0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 270 PHASE 270 PHASE DIFFERENTIAL MODE 0 PHASE 90 PHASE 180 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5 0 0 0 TO LOW LI -0.5	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 limpedance -1.0 0 0	+2.0 0 0 0 0 0 0 0 0 0 0 0 0 0	-2.0 -2.0 -2.0 -2.0 -2.0	+4.0	-4.0 	
	0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE DIFFERENTIAL MODE 0 PHASE 90 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0	ROUND (12 -0.5 0 0 0 0 -0.5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 limpedance -1.0 0 0	+2.0 0 0 0 0 +2.0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0	+4.0	-4.0 	
ITEM# PHENOME	0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE DIFFERENTIAL MODE 0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5 0 0 0 TO LOW LI -0.5	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 limpedance -1.0 0 0	+2.0 0 0 0 0 0 0 0 0 0 0 0 0 0	-2.0 -2.0 -2.0 -2.0 -2.0	+4.0	-4.0 	
ITEM# PHENOME	0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 270 PHASE 270 PHASE DIFFERENTIAL MODE 0 PHASE 90 PHASE 180 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5 0 0 0 TO LOW LI -0.5	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 limpedance -1.0 0 0	+2.0 0 0 0 0 0 0 0 0 0 0 0 0 0	-2.0 -2.0 -2.0 -2.0 -2.0	+4.0	-4.0 	
ITEM# PHENOME	0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE DIFFERENTIAL MODE 0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5 0 0 0 TO LOW LI -0.5	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 limpedance -1.0 0 0	+2.0 0 0 0 0 0 0 0 0 0 0 0 0 0	-2.0 -2.0 -2.0 -2.0 -2.0	+4.0	-4.0 	
ITEM # PHENOME	0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE DIFFERENTIAL MODE 0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5 0 0 0 TO LOW LI -0.5	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 limpedance -1.0 0 0	+2.0 0 0 0 0 0 0 0 0 0 0 0 0 0	-2.0 -2.0 -2.0 -2.0 -2.0	+4.0	-4.0 	
ITEM# PHENOME	0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE DIFFERENTIAL MODE 0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5 0 0 0 TO LOW LI -0.5	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 limpedance -1.0 0 0	+2.0 0 0 0 0 0 0 0 0 0 0 0 0 0	-2.0 -2.0 -2.0 -2.0 -2.0	+4.0	-4.0 	
ITEM# PHENOME	0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE DIFFERENTIAL MODE 0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5 0 0 0 TO LOW LI -0.5	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 limpedance -1.0 0 0	+2.0 0 0 0 0 0 0 0 0 0 0 0 0 0	-2.0 -2.0 -2.0 -2.0 -2.0	+4.0	-4.0 	
ITEM# PHENOME	0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE DIFFERENTIAL MODE 0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5 0 0 0 TO LOW LI -0.5	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 limpedance -1.0 0 0	+2.0 0 0 0 0 0 0 0 0 0 0 0 0 0	-2.0 -2.0 -2.0 -2.0 -2.0	+4.0	-4.0 	
ITEM# PHENOME	0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE DIFFERENTIAL MODE 0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5 0 0 0 TO LOW LI -0.5	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 limpedance -1.0 0 0	+2.0 0 0 0 0 0 0 0 0 0 0 0 0 0	-2.0 -2.0 -2.0 -2.0 -2.0	+4.0	-4.0 	
ITEM# PHENOME	0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE DIFFERENTIAL MODE 0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5 0 0 0 TO LOW LI -0.5	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 limpedance -1.0 0 0	+2.0 0 0 0 0 0 0 0 0 0 0 0 0 0	-2.0 -2.0 -2.0 -2.0 -2.0	+4.0	-4.0 	
ITEM# PHENOME	0 PHASE 90 PHASE 180 PHASE 270 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 270 PHASE 270 PHASE DIFFERENTIAL MODE 0 PHASE 90 PHASE 180 PHASE 270 PHASE	+0.5 0 0 0 1	ROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5 0 0 0 TO LOW LI -0.5	2 ohm Imper +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 limpedance -1.0 0 0	+2.0 0 0 0 0 0 0 0 0 0 0 0 0 0	-2.0 -2.0 -2.0 -2.0 -2.0	+4.0	-4.0 	

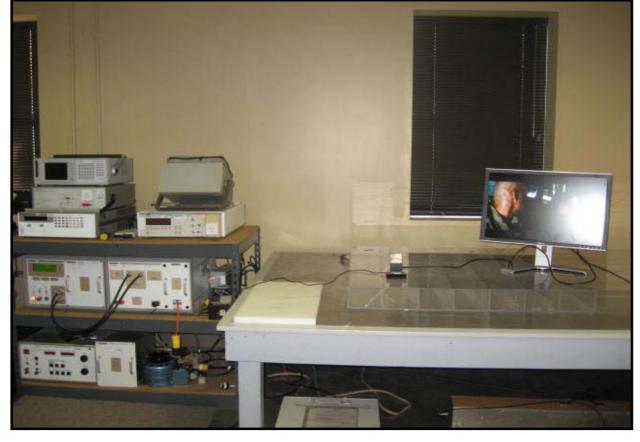




NORTHWEST			0111	205.04	TA 011					IMM 2008.10
EMC			SU	RGE DA	ATA SH	EET				
EUT:	Zune HD							V	Vork Order:	
Serial Number:										06/02/09
	Microsoft Corporation								rature (°C):	
	James Wooten			•					Humidity:	
Project				Config. #:				Bar.	Pres. (mb):	
	Travis Rychener			Power:	230VAC/50	Hz			Job Site:	SU06
TEST SPECIFICATION	NS EN 55024:1998 (Amend	ad by Ad.	2004 and 60			Mathaali	IEC 64000	4 E-200E		
эреспісацоп.	EN 35024. 1996 (Amend	eu by A1.2	2001 and Az	2.2003)		wiethou.	IEC 61000-	4-5.2005		
TEST PARAMETERS										
	EN CIRCUIT VOLTAGE, I	RISETIME:	1.2 us ± 30	%		SHOF	T-CIRCUIT	CURRENT	RISETIME:	8 us ± 20%
						TIME	BETWEEN	SUCCESIV	E PULSES:	20 sec.
OPEN CIRCU	IT VOLTAGE, TIME TO 1	/2-VALUE:	50 us ± 20%	%	SH	ORT-CIRCU	IT CURREN	IT TIME TO	1/2-VALUE	20 us ± 20%
COMMENTS										
Device, HDMI cable to	TV, AV dock sn:0918000	046, Delta I	PS mn: DPS	SN-8CB-A re	ev S3 sn: 00	837702385				
EUT OPERATING MO	DES									
AV Playback, 720p										
DEVIATIONS FROM T	EST STANDARD									
No deviations.										
EUT FUNCTIONS MO	NITORED									
Interruption of Video										
RESULTS										
No Anomalies Observ	red During the Test									
	_		_							
Meets NWEMC Perfor	mance Criteria	1						1	1	
Criteria - The EUT ext	nibited no change in peri	formance v	when opera	ting as					00	
	ifacturor								7	
specifiea by the mani	nactui c i.									
specified by the mani	macturer.								Tested By	
specified by the mani	nacturer.								Tested By	_
specified by the mant	macturer.								Tested By	_
specmea by the mant	macturer.		No	ote: 5 surge	s each setti	ng			Tested By	
specmed by the mant	nacturer.		No	ote: 5 surge	s each setti	ng			Tested By	
<i>specmed by the mant</i>	COMMON MODE HIGH	LINE TO G				ng			Tested By	
<i>specmed by the mant</i>		LINE TO G				ng +2.0	-2.0	+4.0	Tested By	
<i>specmed by the mant</i>			ROUND (12	2 ohm Impe	dance)		-2.0 o	+4.0		
specified by the manu	COMMON MODE HIGH	+0.5	ROUND (12 -0.5	2 ohm Impe +1.0	dance) -1.0	+2.0			-4.0	
<i>specmed by the mant</i>	COMMON MODE HIGH	+0.5 o	ROUND (12 -0.5	2 ohm Impe +1.0	dance) -1.0	+2.0	0	-	-4.0	
<i>specmed by the mant</i>	COMMON MODE HIGH 0 PHASE 90 PHASE	+0.5 0	6ROUND (12 -0.5 0	2 ohm Impe +1.0 0	dance) -1.0 0	+2.0 0 0	0	-	-4.0 - -	
<i>specmed by the mant</i>	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE	+0.5 0 0	6ROUND (12 -0.5 0	2 ohm Impe +1.0 0 0	dance) -1.0 0 0	+2.0 0 0	0 0 0		-4.0 - -	
specmed by the mant	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE	+0.5 0 0 0	-0.5 0 0 0	2 ohm Impe +1.0 0 0	dance) -1.0 0 0 0 0	+2.0 0 0	0 0 0		-4.0 - -	
specmed by the mant	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE	+0.5 0 0 0	-0.5 0 0 0	2 ohm Impe +1.0 0 0	dance) -1.0 0 0 0 0	+2.0 0 0	0 0 0		-4.0 - -	
specmed by the mant	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE	+0.5 0 0 0 0	0.5 0 0 0 0 0 0 ROUND (12	2 ohm Impe	dance) -1.0 0 0 0 0 dance)	+2.0 0 0 0	0 0 0 0	- - -	-4.0	
specified by the mant	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE	+0.5 0 0 0 0 LINE TO G +0.5	ROUND (12 -0.5 0 0 0 0 0 ROUND (12	2 ohm Impe +1.0 0 0 0 0 0	dance) -1.0 0 0 0 0 dance) -1.0	+2.0 0 0 0 0	0 0 0 0	- - -	-4.0 - - - - -	
<i>specmed by the mant</i>	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW	+0.5 0 0 0 0 LINE TO G +0.5	GROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5	2 ohm Impe +1.0 0 0 0 0 0	dance) -1.0 0 0 0 0 0 dance) -1.0	+2.0 0 0 0 0 0 +2.0	0 0 0 0	+4.0	-4.0 - - - - - -	
<i>specmea by the mant</i>	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE	+0.5 0 0 0 0 0 LINE TO G +0.5 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5	2 ohm Impe +1.0 0 0 0 0 0 0 0 0 0	dance) -1.0 0 0 0 0 0 dance) -1.0 0	+2.0 0 0 0 0 0 +2.0 0	0 0 0 0	+4.0	-4.0 - - - - - - -	
specmed by the mant	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE	+0.5 0 0 0 0 0 tine TO G +0.5 0 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0	2 ohm Impe +1.0 0 0 0 0 0 0 c c hm Impe +1.0 0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0	+2.0 0 0 0 0 0 +2.0 0 0	0 0 0 0	+4.0	-4.0 - - - - - - - - -	
specmed by the mant	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE	+0.5 0 0 0 0 1 LINE TO G +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5 0	2 ohm Impe +1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	+2.0 0 0 0 0 0 +2.0 0 0	0 0 0 0	+4.0	-4.0 - - - - - - - - -	
specmed by the mant	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE	+0.5 0 0 0 0 1 LINE TO G +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 ROUND (12 -0.5 0	2 ohm Impe +1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	+2.0 0 0 0 0 0 +2.0 0 0	0 0 0 0	+4.0	-4.0 - - - - - - - - - -	
<i>specmea by the mant</i>	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE	+0.5 0 0 0 LINE TO G +0.5 0 0 HIGH LINE	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0	2 ohm Imped +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 dance) 0 0 0 Impedance	+2.0 0 0 0 0 0 +2.0 0 0 0	0 0 0 0	+4.0	-4.0 -4.0 	
specimed by the mant	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 HIGH LINE +0.5	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0	2 ohm Impe +1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 simple dance -1.0	+2.0 0 0 0 0 0 +2.0 0 0 0 +2.0	-2.0 0 0 0	+4.0	-4.0 	
specified by the mant	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE 0 PHASE 90 PHASE 180 PHASE 270 PHASE DIFFERENTIAL MODE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0	2 ohm Impe +1.0 0 0 0 0 0 2 ohm Imped +1.0 0 0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 Impedance -1.0 0	+2.0 0 0 0 0 0 +2.0 0 0 0 +2.0 0	0 0 0 0 0	+4.0	-4.0 	
specified by the mant	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 270 PHASE 270 PHASE DIFFERENTIAL MODE 0 PHASE 90 PHASE	+0.5 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0 0 0 0	2 ohm Imped +1.0	dance) -1.0 0 0 0 0 dance) -1.0 0 0 0 Impedance -1.0 0 0	+2.0 0 0 0 0 0 +2.0 0 0 0 0 1 +2.0 0 0 0	0 0 0 0 0 0 0 0 0	+4.0	-4.0 	
	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 270 PHASE 270 PHASE 0 PHASE 180 PHASE 180 PHASE	+0.5 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0 0 0	2 ohm Imped +1.0	dance) -1.0 0 0 0 -1.0 0 -1.0 0 0 0 0 Impedance -1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	+2.0 0 0 0 0 0 +2.0 0 0 0 0 1 +2.0 0 0 0	0 0 0 0 0 0 0 0 0	+4.0	-4.0 	
	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 270 PHASE 270 PHASE 0 PHASE 180 PHASE 180 PHASE	+0.5 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0 0 0	2 ohm Imped +1.0	dance) -1.0 0 0 0 -1.0 0 -1.0 0 0 0 0 Impedance -1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	+2.0 0 0 0 0 0 +2.0 0 0 0 0 1 +2.0 0 0 0	0 0 0 0 0 0 0 0 0	+4.0	-4.0 	
	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE 0 PHASE 90 PHASE 180 PHASE 90 PHASE 270 PHASE	+0.5 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0 0 0	2 ohm Imped +1.0	dance) -1.0 0 0 0 -1.0 0 -1.0 0 0 0 0 Impedance -1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	+2.0 0 0 0 0 0 +2.0 0 0 0 0 1 +2.0 0 0 0	0 0 0 0 0 0 0 0 0	+4.0	-4.0 	
	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE 0 PHASE 90 PHASE 180 PHASE 90 PHASE 270 PHASE	+0.5 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0 0 0	2 ohm Imped +1.0	dance) -1.0 0 0 0 -1.0 0 -1.0 0 0 0 0 Impedance -1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	+2.0 0 0 0 0 0 +2.0 0 0 0 0 1 +2.0 0 0 0	0 0 0 0 0 0 0 0 0	+4.0	-4.0 	
	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE 0 PHASE 90 PHASE 180 PHASE 90 PHASE 270 PHASE	+0.5 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0 0 0	2 ohm Imped +1.0	dance) -1.0 0 0 0 -1.0 0 -1.0 0 0 0 0 Impedance -1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	+2.0 0 0 0 0 0 +2.0 0 0 0 0 1 +2.0 0 0 0	0 0 0 0 0 0 0 0 0	+4.0	-4.0 	
	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE 0 PHASE 90 PHASE 180 PHASE 90 PHASE 270 PHASE	+0.5 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0 0 0	2 ohm Imped +1.0	dance) -1.0 0 0 0 -1.0 0 -1.0 0 0 0 0 Impedance -1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	+2.0 0 0 0 0 0 +2.0 0 0 0 0 1 +2.0 0 0 0	0 0 0 0 0 0 0 0 0	+4.0	-4.0 	
	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE 0 PHASE 90 PHASE 180 PHASE 90 PHASE 270 PHASE	+0.5 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0 0 0	2 ohm Imped +1.0	dance) -1.0 0 0 0 -1.0 0 -1.0 0 0 0 0 Impedance -1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	+2.0 0 0 0 0 0 +2.0 0 0 0 0 1 +2.0 0 0 0	0 0 0 0 0 0 0 0 0	+4.0	-4.0 	
	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE 0 PHASE 90 PHASE 180 PHASE 90 PHASE 270 PHASE	+0.5 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0 0 0	2 ohm Imped +1.0	dance) -1.0 0 0 0 -1.0 0 -1.0 0 0 0 0 Impedance -1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	+2.0 0 0 0 0 0 +2.0 0 0 0 0 1 +2.0 0 0 0	0 0 0 0 0 0 0 0 0	+4.0	-4.0 	
	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 180 PHASE 270 PHASE 0 PHASE 90 PHASE 180 PHASE 90 PHASE 270 PHASE	+0.5 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0 0 0	2 ohm Imped +1.0	dance) -1.0 0 0 0 -1.0 0 -1.0 0 0 0 0 Impedance -1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	+2.0 0 0 0 0 0 +2.0 0 0 0 0 1 +2.0 0 0 0	0 0 0 0 0 0 0 0 0	+4.0	-4.0 	
	COMMON MODE HIGH 0 PHASE 90 PHASE 180 PHASE 270 PHASE COMMON MODE LOW 0 PHASE 90 PHASE 270 PHASE 270 PHASE 270 PHASE 270 PHASE 270 PHASE 180 PHASE 180 PHASE 270 PHASE	+0.5 0 0 0 0 LINE TO G +0.5 0 0 0 HIGH LINE +0.5 0 0 0	ROUND (12 -0.5 0 0 0 0 0 ROUND (12 -0.5 0 0 0 0	2 ohm Impe +1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	dance) -1.0 0 0 0 -1.0 0 -1.0 0 0 0 0 Impedance -1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	+2.0 0 0 0 0 0 +2.0 0 0 0 0 1 +2.0 0 0 0	0 0 0 0 0 0 0 0 0	+4.0	-4.0 	

NORTHWEST										IMM 2008.10.1 SL
EMC			SUI	RGE DA	ATA SH	EET				St
EUT:	Zune HD							V	Vork Order:	MCSO1426
Serial Number:	00031391815								Date:	06/02/09
	Microsoft Corporation								rature (°C):	
	James Wooten								Humidity:	
Project:				Config. #:				Bar.	Pres. (mb):	
	Travis Rychener			Power:	230VAC/50)Hz			Job Site:	SU06
TEST SPECIFICATION Specification:	NS EN 55024:1998 (Ameno	led by A1:	2001 and A2	2:2003)		Method:	IEC 61000-	4-5:2005		
	,			,						
TEST PARAMETERS	EN OIDOUET VOLTAGE	DIOCETIME	40 .00	.0.		01105	- OIDOIUT	CURRENT	DIOETIME	0 1 000/
OPI	EN CIRCUIT VOLTAGE,	RISE IIME:	1.2 us ± 30	1%				CURRENT		
ODEN CIDCU	IT VOLTACE TIME TO 4	IO MALTIE	E0 + 200	1/	CII			SUCCESIV		20 sec. 20 us ± 20%
COMMENTS	IT VOLTAGE, TIME TO 1	/Z-VALUE	150 us ± 20	70	эп	OKT-CIRCO	II CURREN	AT TIME TO	1/2-VALUE	20 us 1 20%
	TV, AV dock sn:091800	046, Delta	PS mn: DPS	SN-8CB-A re	ev S3 sn: 00	0837702385				
EUT OPERATING MO	DES									
AV Playback, 720p										
DEVIATIONS FROM T	EST STANDARD									
No deviations.	LOT OTANDAND									
EUT FUNCTIONS MOI	NITORED									
Interruption of Video										
RESULTS										
Anomalies Observed	- See Data Below									
Meets NWEMC Perfor	mance Criteria	4	1					-		
	nibited a change in perfo	rmance w	hen onerati	nn as					110	
	ufacturer; the EUT would		•	ng uo					9	
specifica by the mant	mactarer, the Lot would	111011000						-	Tested By	
									rested by	
			No	ote: 5 surge	s each sett	ina				
				<u>-</u>		9				
	COMMON MODE HIGH	LINE TO G	ROUND (12	2 ohm Impe	dance)					
		+3.0	-3.0	+4.0	-4.0	+5.0	-5.0	+6.0	-6.0	
	0 PHASE	0	0	0	0	Α	-	_	-	
	90 PHASE	0	0	0	0	_	-	_	-	
	180 PHASE	0	0	0	0	_	_	_	-	
	270 PHASE	0	0	0	0	_	_	_	-	
			<u> </u>		<u> </u>			!		
	COMMON MODE LOW	LINE TO G	ROUND (12	ohm Impe	dance)					
		+3.0	-3.0	+4.0	-4.0	+5.0	-5.0	+6.0	-6.0	
	0 PHASE	0	0	0	0	-	-	-	-	
	90 PHASE	0	0	0	0	_	_	_	_	
	180 PHASE	0	0	0	0	_	_	_	_	
	270 PHASE	0	0	0	0	_	_	_	_	
		-								
	DIFFERENTIAL MODE	HIGH LINE	TO LOW L	INE (2 ohm	Impedance)				
		+3.0	-3.0	+4.0	-4.0	+5.0	-5.0	+6.0	-6.0	
	0 PHASE	0	0	0	0	-	-	-	-	
	90 PHASE	0	0	0	0	-	-	-	-	
	180 PHASE	0	0	0	0	-	-	-	-	
	270 PHASE	0	0	0	0	-	-	-	-	
	NA OBSERVED		<u> </u>							
A EUT powe	rs off, EUT OK. Power S	Supply dan	naged							
Voyu		o = No EU	T response	observed				- = Not test	ted	
Key:										





CONDUCTED IMMUNITY

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

AV Playback, 720p

AV Playback

POWER SETTINGS INVESTIGATED

230VAC/50Hz

CONFIGURATIONS INVESTIGATED

MCSO1426 - 2,5

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
CDN	Dressler	M3	INR	11/5/2008	13 mo
Attenuator-20dB/30W	JFW	50FH-020	RBF	1/14/2009	13 mo
Power Head	Amplifier Research	PH2000	SQH	3/27/2009	12 mo
Power Head	Amplifier Research	PH2000	SPG	12/8/2008	13 mo
Power Meter	Amplifier Research	PM2002	SQB	12/8/2008	13 mo
RF Amplifier	Amplifier Research	75A250	TRM	NCR	0 mo
Signal Generator	Rohde & Schwarz	SML01	TGV	12/8/2008	13 mo

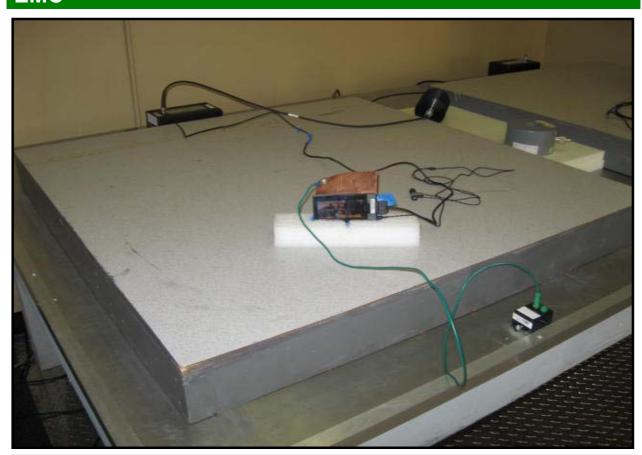
MEASUREMENT UNCERTAINTY

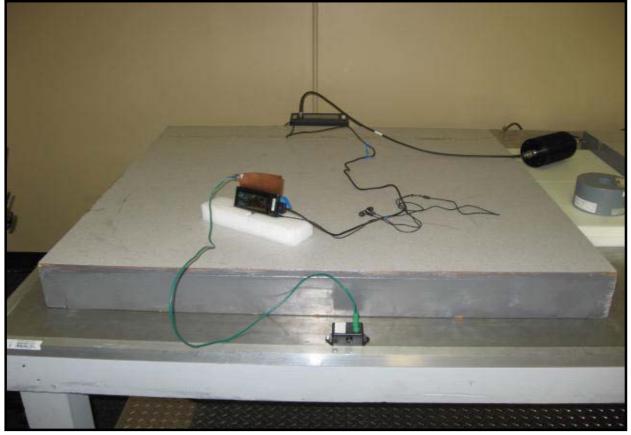
Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, a Conducted RF Immunity test was performed. The source of disturbance covered by the standard is basically an electromagnetic field, coming from intended RF transmitters, that may act on the whole length of cables connected to an installed equipment. The dimensions of the disturbed equipment, mostly a sub-part of a larger system, are assumed to be small compared with the wavelengths involved. The ingoing and outgoing leads: e.g. mains, communication lines, and interface cables, behave as passive receiving antenna networks because they can be several wavelengths long. The use of coupling and decoupling devices to apply the disturbing signal to one cable at a time, while keeping all other cables non-excited, can only approximate the real situation where disturbing sources act on all cables simultaneously, with a range of different amplitudes and phases. Coupling and decoupling devices are defined by their characteristics. Any coupling and decoupling device fulfilling these characteristics can be used.

NORTHWEST							IMM 20	08.10.17
EMC		CONDUCT	ED IMMUNITY DA	ATA SH	EET		20	CI
	7 UD					Wards Ondani	M0004400	
Serial Number:	Zune HD					Work Order:	06/01/09	
	Microsoft Corpora	tion				Temperature (°C):		
	James Wooten	luon				Relative Humidity:		
Project:			Config. #: 2			Bar. Pres. (mb):		
	Travis Rychener		Power: 230VAC/50	Hz		Job Site:	SU03	
TEST SPECIFICATION	S							
Specification:	EN 55024:1998 (Ar	mended by A1:2001 and A	2:2003)	Method	I: IEC 61000-4	-6:2008		
TEST PARAMETERS	0 V/D140	0 1 1 0 1 (0.14)		41.11	0.11.4	4 O D	0.11.4	
Test Level:		Spec. Level: 3 VRMS	Mod. Freq.:			AC Power	Cable 4	
Start Freq.: Step Size:		Stop Freq.: 80MHz Dwell Time: 1sec.	Mod. Type: Mod. Depth:		Cable 2 Cable 3		Cable 5	
COMMENTS	1 70	Dwell Time: Tsec.	Mod. Depth:	OU 70	Cable 3			
	remium earbuds D	elta PS mn: DPSN-8CB-A	rev S3 sn: 00837702385	1				
Dovice, Cyne cable, i i	omiam carbado, b	ona i o iiiii. Bi on oob A						
EUT OPERATING MOD	DES							
AV Playback								
•								
DEVIATIONS FROM TI	EST STANDARD							
No deviations.								
EUT FUNCTIONS MON	IITORED							
Interruption of video								
RESULTS								
No Anomalies Observ	ad During the Test							
NO Allollianes Observ	ed During the rest							
No operation	na frequencies wer	e provided by the client.						
no operum		o p. o						
Meets NWEMC Perfori	mance Criteria	1			10	1		
Criteria - The EUT exhibited	no change in performa	nce when operating as specified	by the		1	+ (40		
manufacturer.					_	(
			Т			Tested By		
Eroguanav	Test Level	Cable Tested	Dhanamana Ohaamia	/C	4-			
Frequency	(Volts RMS)	Cable rested	Phenomena Observed	Commen	ts			





NORTHWEST							IM	M 2008.10.17
EMC		CONDUCT	ED IMMUNITY DA	ATA SH	EET			CI
	Zuna IID					Mank Ondan	MCC04426	
Serial Number:	Zune HD					Work Order:	06/01/09	
	Microsoft Corpora	tion				Temperature (°C):		
	James Wooten					Relative Humidity:		
Project:			Config. #: 5			Bar. Pres. (mb):	1020.5	
	Travis Rychener		Power: 230VAC/50	Hz		Job Site:	SU03	
TEST SPECIFICATION								
Specification:	EN 55024:1998 (An	nended by A1:2001 and A	2:2003)	Method	: IEC 61000-4	-6:2008		
TEST PARAMETERS								
	>= 10 VRMS	Spec. Level: 3 VRMS	Mod. Freq.:	16H2	Cable 1	AC Power	Cable 4	
Start Freq.:		Stop Freq.: 80MHz	Mod. Type:		Cable 2	401000	Cable 5	
Step Size:		Dwell Time: 1sec.	Mod. Depth:		Cable 3		Gubic C	
COMMENTS								
Device, HDMI cable to	TV, AV dock sn:09	1800046, Delta PS mn: DF	PSN-8CB-A rev S3 sn: 0	083770238	5			
EUT OPERATING MOI	DES							
AV Playback, 720p								
DEVIATIONS FROM T	EST STANDARD							
No deviations.	EST STANDARD							
110 401141101101								
EUT FUNCTIONS MON	NITORED							
Interruption of video								
RESULTS								
No Anomalies Observ	ed During the Test							
<u> </u>								
No operati	ng frequencies wer	e provided by the client.						
Meets NWEMC Perform	mance Criteria	1			10			
		nce when operating as specified	hv the		-	7 (00		
manufacturer.	no onango m por onnar	ioo iiiioii opoi aanig ao opoomoa	wy 1		<u>_</u>	7		
						Tested By		
_	Test Level							
Frequency	(Volts RMS)	Cable Tested	Phenomena Observed	/Comment	ts			





EMC

MAGNETIC FIELD IMMUNITY

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

AV Playback, 720p

AV Playback, Composite

Syncing To Laptop
POWER SETTINGS INVESTIGATED

230VAC/50Hz

CONFIGURATIONS INVESTIGATED

MCSO1426 - 4,5,7

TEST EQUIPMENT						
Description	Manufacturer	Model	ID	Last Cal.	Interval	
Power Source/Analyzer	Hewlett Packard	6841A	THC	12/7/2007	24 mo	
Helmholtz Coil	NWEMC	N/A	IMI	11/26/2008	13 mo	

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, a Power Frequency Magnetic Field Immunity test was performed. The tests are intended to demonstrate the immunity of equipment when subjected to power frequency magnetic fields related to the specific location and installation condition of the equipment (e.g. proximity of equipment to the disturbance source). The power frequency magnetic field is generated by power frequency current in conductors or, rarely, from other devices (e.g. leakage or transformers) in the proximity of equipment.

NORTHWEST EMC	MAGNETIC	FIELD IMMUNITY	DATA SHEET	IMM 2008.10.17 MF
EUT:	Zune HD			Work Order: MCSO1426
Serial Number:	00031391815			Date: 06/04/09
Customer:	Microsoft Corporation			Temperature (°C): 22.6 °C
Attendees:	James Wooten			Relative Humidity: 41%
Project:	None	Config. #: 4		Bar. Pres. (mb): 1020.5
Tester:	Travis Rychener	Power: 230VAC/501	-lz	Job Site: SU06
TEST SPECIFICATION				
Specification:	EN 55024:1998 (Amended by A1:2001 and A	A2:2003)	Method: IEC 61000	-4-8:2001
TEST PARAMETERS				
TE	ST LEVEL: 3 A/m			
TEST FR	EQUENCY: 50Hz			
COMMENTS	/, AV dock sn: 091800046 Delta PS mn: DPS	N 00D A 00 0004	07005750	
Device, AV cable to 11	7, AV dock sn: 091800046 Deita P5 mn: DP5	N-8CB-A rev 53 sn: 0024	8/005/52	
EUT OPERATING MOD	DES			
AV Playback, Compos	ite			
i iaybaok, compos				
DEVIATIONS FROM TE	EST STANDARD			
No deviations.				
EUT FUNCTIONS MON	IITORED			
Interruption of Video				
RESULTS				
No Anomalies Observe	ed During the Test			
Meets NWEMC Perforn Criteria - The EUT exh specified by the manu	ibited no change in performance when oper	rating as		Tested By
				rested by
	Results O		Y	
	Y		<u></u>	x
	Z o	Z		
Item # PHENOME	NA OBSERVED			
Key:	o = No EUT response	e observed	- = Not tes	sted
-			1100 100	

Magnetic Field Immunity





NORTHWEST EMC	MAGNETI	C FIELD IMMUNITY	DATA SHEET	IMM 2008.10.17 MF
	- UD			W 0 M0004400
Serial Number:	Zune HD			Work Order: MCSO1426 Date: 06/04/09
	Microsoft Corporation			Temperature (°C): 22.6 °C
	James Wooten			Relative Humidity: 41%
Project:		Config. #: 5		Bar. Pres. (mb): 1020.5
	Travis Rychener	Power: 230VAC/50	0Hz	Job Site: SU06
TEST SPECIFICATION	IS			
Specification:	EN 55024:1998 (Amended by A1:2001 an	d A2:2003)	Method: IEC 61000-	4-8:2001
TEST PARAMETERS				
	ST LEVEL: 3 A/m			
	EQUENCY: 50Hz			
COMMENTS				
Device, AV cable to T	V, AV dock sn: 091800046 Delta PS mn: D	PSN-8CB-A rev S3 sn: 002	487005752	
EUT OPERATING MOD	DES			
AV Playback, 720p	DES			
,				
DEVIATIONS FROM T	EST STANDARD			
No deviations.				
EUT FUNCTIONS MON	NITORED			
Interruption of Video				
RESULTS				
No Anomalies Observ	red During the Test			
Meets NWEMC Perfort Criteria - The EUT exh specified by the manu	nibited no change in performance when o	perating as		Tested By
				rested by
	Results		Y	
	X o	,		
	Y			
	Yo			
			/	X
			<i>'</i>	
	Z	/ Z		
		★		
Item # PHENOME	NA OBSERVED			
Key:	o = No EUT respo	nse observed	- = Not test	ted





NORTHWEST EMC	MAGN	ETIC FIELD IMMUNIT	/ DATA SHEET	IMM 2008.10.17 MF
				W 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Serial Number:	Zune HD 00031391815			Work Order: MCSO1426 Date: 06/04/09
	Microsoft Corporation			Temperature (°C): 22.6 °C
	James Wooten			Relative Humidity: 41%
Project:		Config. #: 7		Bar. Pres. (mb): 1020.5
	Travis Rychener	Power: 230VAC/	60Hz	Job Site: SU06
TEST SPECIFICATION	EN 55024:1998 (Amended by A1:200	1 and A2:2003)	Method: IEC 61000-4-8:	2001
эреспісацоп.	LN 33024.1990 (Amended by A1.200	1 and A2.2003)	Metriod. ILC 01000-4-0.	2001
TEST PARAMETERS				
	ST LEVEL: 3 A/m			
TEST FR	EQUENCY: 50Hz			
COMMENTS				
	kternal Speakers, AV dock sn: 091800	046. laptop		
,				
EUT OPERATING MOD	DES			
Syncing to Laptop				
DEVIATIONS FROM T	EST STANDADD			
No deviations.	EST STANDARD			
EUT FUNCTIONS MON	NITORED			
Interruption of Video				
RESULTS				
No Anomalies Observ	red During the Test			
THE FAIRCHIGHTED CASCIT	od Barring and 1000			
Meets NWEMC Perform Criteria - The EUT exh specified by the manu	nibited no change in performance whe	en operating as	=	Flyd
				Tested By
				
	Results		Υ	
	Х о			
	Х о	4		
	Y			
			بـــــــــــــــــــــــــــــــــــــ	
				X
	Z o	Z	/	
		_		
Item # PHENOME	NA OBSERVED			
Item# PHENOME	INA OBSERVED			
Key:	o = No EUT re	sponse observed	- = Not tested	

Magnetic Field Immunity





NORTHWEST

VOLTAGE DIPS AND INTERRUPTS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

AV Playback, 720p

POWER SETTINGS INVESTIGATED

230VAC/50Hz

CONFIGURATIONS INVESTIGATED

MCSO1426 - 5

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Oscilloscope	Hewlett-Packard	54615B	TOD	12/9/2008	13 mo
Auto Transformer	EM Test	V4070M1	SPS	NCR	0 mo
EFT Surge VDI Test System	Amplifier Research	UCS 500	ISA	NCR	0 mo

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, a Voltage interruption and dip Immunity test was performed. The standard applies to electrical and electronic equipment having a rated input current not exceeding 16 A per phase. It does not apply to electrical and electronic equipment for connection to D.C. networks or 400 Hz A.C. networks. Electrical and electronic equipment may be affected by voltage dips, short interruptions or voltage variations of power supply. Voltage dips and short interruptions are caused by faults in the network, in installations or by a sudden large change of load. In certain cases, two or more consecutive dips or interruptions may occur. The continuously varying loads connected to the network cause voltage variations.

NORTHWEST			VOI	TACE DIDE	& INTERRUPTIONS	DATA SHEET	IMM 2008.10.
EMC			VOL	TAGE DIPS	& INTERRUPTIONS	DATA SHEET	
	EUT: Z	une HD				· ·	Work Order: MCSO1426
		003139181					Date: 06/04/09
		icrosoft Co					erature (°C): 22.6 °C
		ames Woot	ten		C		e Humidity: 41%
	roject: N	one ravis Rych	oner		Config. #: 5 Power: 230VAC/50Hz	Dar.	Pres. (mb): 1020.5 Job Site: SU06
TEST SPECIFICA		avis itycii	ener		1 0We1. 230VAC/30112		JOB Gite. GOOD
		N 55024:19	98 (Ameno	led by A1:2001 and	A2:2003) Meth	nod: IEC 61000-4-11:2004	
EUT OPERATING AV Playback, 72 DEVIATIONS FR No deviations. EUT FUNCTIONS Interruption of V	G MODE 20p ROM TES	S T STANDA		0046, Delta PS mn: D	DPSN-8CB-A rev S3 sn: 0024870	05752	
RESULTS							
Anomalies Obse	erved - S	ee Data Be	low				
							Tested By
Results					Environmental Phenomena		Tested By
Results Number		Perco	ent	Duration	Environmental Phenomena Phase Angles Tested	Phenomena	Tested By Meets NWEMC
Number of Events		Reduc	tion	Duration	Phase Angles Tested	Phenomena Observed	·
Number of Events 3		Reduc 100	tion %	Duration 10ms	Phase Angles Tested 0°, 90°, 180°, 270°	Observed 0	Meets NWEMC Performance Criteria
Number of Events 3 3		Reduc 100 30%	tion % %	Duration 10ms 500ms	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270°	Observed 0 0	Meets NWEMC Performance Criteria 1
Number of Events 3		Reduc 100	tion % %	Duration 10ms	Phase Angles Tested 0°, 90°, 180°, 270°	Observed 0	Meets NWEMC Performance Criteria 1 1 3
Number of Events 3 3		Reduc 100 30%	tion % %	Duration 10ms 500ms	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270°	Observed 0 0	Meets NWEMC Performance Criteria 1 1 3 N/A
Number of Events 3 3		Reduc 100 30%	tion % %	Duration 10ms 500ms	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270°	Observed 0 0	Meets NWEMC Performance Criteria 1 1 3 N/A N/A
Number of Events 3 3		Reduc 100 30%	tion % %	Duration 10ms 500ms	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270°	Observed 0 0	Meets NWEMC Performance Criteria 1 1 3 N/A N/A N/A
Number of Events 3 3		Reduc 100 30%	tion % %	Duration 10ms 500ms	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270°	Observed 0 0	Meets NWEMC Performance Criteria 1 1 3 N/A N/A N/A N/A
Number of Events 3 3		Reduc 100 30%	tion % %	Duration 10ms 500ms	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270°	Observed 0 0	Meets NWEMC Performance Criteria 1 1 3 N/A N/A N/A N/A N/A N/A
Number of Events 3 3		Reduc 100 30%	tion % %	Duration 10ms 500ms	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270°	Observed 0 0	Meets NWEMC Performance Criteria 1 1 3 N/A N/A N/A N/A
Number of Events 3 3		Reduc 100 30%	tion % %	Duration 10ms 500ms	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270°	Observed 0 0	Meets NWEMC Performance Criteria 1 1 3 N/A N/A N/A N/A N/A N/A N/A N/A
Number of Events 3 3 1		Reduc 100' 30% >95'	tion % %	Duration 10ms 500ms 5S	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270°	Observed 0 0	Meets NWEMC Performance Criteria 1 1 3 N/A
of Events 3 3 1	Performa	Reduc 100' 30', >95'	tion % 6 %	Duration 10ms 500ms 5S	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270°	Observed O A	Meets NWEMC Performance Criteria 1 1 3 N/A
Number of Events 3 3 1	Performa JT exhib	Reduc 100' 30', >95'	tion % % % ia gge in perfo	Duration 10ms 500ms 5S 3 3 3 3 3 3 3 3 3 3 3 3 3	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270° 0°	Observed O A	Meets NWEMC Performance Criteria 1 1 3 N/A
Number of Events 3 3 1 Meets NWEMC F Criteria - The EU required to reco	Performa JT exhib- over.	Reduc 1000 30% >950 ance Criterited a chan	tion % % % % price of the pric	Duration 10ms 500ms 5S 3 ormance when operation	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270° 0° ating as specified by the manufa	Observed O A A A A A A A A A A A A A A A A A A	Meets NWEMC Performance Criteria 1 1 3 N/A
Number of Events 3 3 1 1 Meets NWEMC F Criteria - The EU required to reco	Performa JT exhib	Reduc 1000 30% >950 ance Criterited a chan	tion % % % % price of the pric	Duration 10ms 500ms 5S 3 ormance when operation	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270° 0°	Observed O A A A A A A A A A A A A A A A A A A	Meets NWEMC Performance Criteria 1 1 3 N/A
Number of Events 3 3 1 Meets NWEMC F Criteria - The EU required to reco	Performa JT exhib- over.	Reduc 1000 30% >950 ance Criterited a chan	tion % % % % price of the pric	Duration 10ms 500ms 5S 3 ormance when opera	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270° 0° ating as specified by the manufa	Observed O A A A A A A A A A A A A A A A A A A	Meets NWEMC Performance Criteria 1 1 3 N/A
Number of Events 3 3 1 Meets NWEMC F Criteria - The EU required to reco	Performa JT exhib- over.	Reduc 1000 30% >950 ance Criterited a chan	tion % % % % price of the pric	Duration 10ms 500ms 5S 3 ormance when opera	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270° 0° ating as specified by the manufa	Observed O A A A A A A A A A A A A A A A A A A	Meets NWEMC Performance Criteria 1 1 3 N/A
Number of Events 3 3 1 Meets NWEMC F Criteria - The EU required to reco	Performa JT exhib- over.	Reduc 1000 30% >950 ance Criterited a chan	tion % % % % price of the pric	Duration 10ms 500ms 5S 3 ormance when opera	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270° 0° ating as specified by the manufa	Observed O A A A A A A A A A A A A A A A A A A	Meets NWEMC Performance Criteria 1 1 3 N/A
Number of Events 3 3 1 Meets NWEMC F Criteria - The EU required to reco	Performa JT exhib- over.	Reduc 1000 30% >950 ance Criterited a chan	tion % % % % price of the pric	Duration 10ms 500ms 5S 3 ormance when opera	Phase Angles Tested 0°, 90°, 180°, 270° 0°, 90°, 180°, 270° 0° ating as specified by the manufa	Observed O A A A A A A A A A A A A A A A A A A	Meets NWEMC Performance Criteria 1 1 3 N/A

o = No EUT response observed

- = Not tested

