CERTIFICATE OF CONFORMITY

ETSI EN 300 328 Test Report

For the following information Ref. File No.:C1M2305008

Product	Small Form Factor PC
Model	LIVA Z3X PLUS (X:A~Z, 0~9, Blank)
Brand	ECS
Applicant	Elitegroup Computer Systems Co., Ltd.
Test Report Number	EM-RF200026A
Standards	ETSI EN 300 328 V2.2.2:2019-07

We hereby certify that the above product has been tested by us with the listed standards and found in compliance with the council Radio Equipment directive 2014/53/EU. The test data & results are issued on the test report no. EM-RF200026A.

Signature

Johnny Hsueh/Section Manager
Date: 2023. 05. 02

Test Laboratory:
AUDIX Technology Corporation, EMC Department
Web Site: www.audixtech.com

The statement is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.

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ETSI EN 300 328
Output Power & Spurious Emissions Report

for

Elitegroup Computer Systems Co., Ltd.

No. 239, Sec. 2., TiDing Blvd., Taipei, Taiwan 11493

Product	**:**	**Small Form Factor PC** **(Embedded with WLAN and BT, 2x2 PCIe M.2 2230 adapter card , model is AX200NGW)**
Model	**:**	**LIVA Z3X PLUS (X:A~Z, 0~9, Blank)**
Brand	**:**	**ECS**
Prepared by	**:**	**AUDIX Technology Corporation,** **EMC Department**

Testing Laboratory
1724

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TEST REPORT

Applicant	:	Elitegroup Computer Systems Co., Ltd.
EUT Description		
(1)Product	:	Small Form Factor PC
(2)Model	:	LIVA Z3X PLUS (X:A~Z, 0~9, Blank)
(3)Brand	:	ECS
(4)Power Rating	:	DC 19V

Measurement Standards Used:

ETSI EN 300 328 V2.2.2:2019-07

Audix Technology Corp. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.
Audix Technology Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens and samples.

This report is based on report of EM-RF200026.

Date of Report of Rev. A: 2023. 05. 02

Reviewed by: Sabrina Wang (Sabrina Wang/Administrator)

Approved by: Johnny Hsueh (Johnny Hsueh/Section Manager)

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1. REVISION RECORD OF TEST REPORT

Issued Date	Edition No	Revision Summary	Report Number
2020. 02. 26	0	Original Report	EM-RF200026
2023. 05. 02	**A**	**To update ETSI EN 300 328 standard version to ETSI EN 300 328 V2.2.2.**	**EM-RF200026A**

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2. GENERAL INFORMATION

2.1. Description of Application

Applicant	Elitegroup Computer Systems Co., Ltd. No. 239, Sec. 2., TiDing Blvd., Taipei, Taiwan 11493
Product	Small Form Factor PC
Brand	ECS
Model Number	LIVA Z3X PLUS (X:A~Z, 0~9, Blank) Above models differences are in Model name, layer, HDD, COM Port, Chassis, Adapter, appearance and marketing. The details of differences description refer to below table.

Table: Model different list

Model	layer	HDD/SSD	COM Port	Chassis	Adapter
LIVA Z3 PLUS (Series)	Single layer	Without	Without	JIAN FU, Z3 PLUS (117x128X35mm)	DC 19V, 4.74A
LIVA Z3E PLUS (Series)	Double layer	With	With	JIAN FU, Z3E PLUS (117x128X52.9mm)	(1)DC 19V, 4.74A (2)DC 19V, 6.32A

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2.2. Description of EUT

<table>
<tr><td>Original Test Model</td><td>LIVA Z3X PLUS</td></tr>
<tr><td>Serial Number</td><td>N/A</td></tr>
<tr><td>Hardware Version</td><td>N/A</td></tr>
<tr><td>Software Version</td><td>N/A</td></tr>
<tr><td>Power Supply Rating</td><td>DC 19V</td></tr>
<tr><td>Sample Status</td><td>Mass Production</td></tr>
<tr><td>RF Features</td><td>WLAN:802.11 a/b/g/n/ac/ax
Bluetooth: BT and BLE (BT 5.0)</td></tr>
<tr><td>Transmit Type</td><td>
<table>
<tr><th colspan="2">2.4 GHz</th></tr>
<tr><td>802.11b</td><td>1T1R</td></tr>
<tr><td>802.11g</td><td>1T1R</td></tr>
<tr><td>802.11n-HT20</td><td>2T2R</td></tr>
<tr><td>802.11n-HT40</td><td>2T2R</td></tr>
<tr><td>802.11ax-HE20</td><td>2T2R</td></tr>
<tr><td>802.11ax-HE40</td><td>2T2R</td></tr>
<tr><td>BT/BLE</td><td>1T1R</td></tr>
<tr><th colspan="2">5G UNII Bands</th></tr>
<tr><td>802.11a</td><td>1T1R</td></tr>
<tr><td>802.11n-HT20/802.11ac-VHT20/ax-HE20</td><td>2T2R</td></tr>
<tr><td>802.11n-HT40/802.11ac-VHT40/ax-HE40</td><td>2T2R</td></tr>
<tr><td>802.11ac-VHT80/ax-HE80</td><td>2T2R</td></tr>
<tr><td>802.11ac-VHT160/ax-HE160</td><td>2T2R</td></tr>
</table>
</td></tr>
<tr><td>Interface Ports of EUT</td><td>• Three Type-A USB 3.0 Ports
• One Type-C USB 3.0 Port
• One Combo Audio Jack (Line out & Mic in)
• One HDMI Port
• One Mini Display Port
• Two Giga LAN Ports
• One 19V DC_IN Port</td></tr>
<tr><td>Accessories Supplied</td><td>• AC Adapter</td></tr>
</table>

2.3. Information for Modification version

- The EUT is an additional version with original report number EM-RF200026 are as following:
  (1) To update ETSI EN 300 328 standard version to ETSI EN 300 328 V2.2.2.
  The new different part limit for RSE is as below:

Frequency Range	Maximum power
470MHz to 694MHz	-54dBm
694MHz to 1GHz	-36dBm

- Due adding model can't influence on RF circuit and test result (please refer to report number: EM-RF200026), so it is unnecessary to re-test.
- The difference of standard version doesn't affect spurious Emissions (RSE) and output Power results.

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2.4. Antenna Information

No.	Antenna Part Number	Manufacturer	Antenna Type	Frequency (MHz)	Max Gain (dBi)
1	T-543-9291167-2 (Main Black)	Linking	PIFA	2400	1.40
				2450	2.43
				2500	0.11
				5150	**3.23**
				5250	2.72
				5350	2.71
				5470	**2.88**
				5600	2.63
				5725	1.21
				5785	**1.55**
2	T-543-9291167-1 (AUX Gray)	Linking	PIFA	2400	3.85
				2450	**4.94**
				2500	3.21
				5150	**3.53**
				5250	2.25
				5350	1.85
				5470	2.14
				5600	1.34
				5725	0.55
				5785	0.78

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2.5. EUT Specifications Assessed in Current Report

Mode	Fundamental Range (MHz)	Channel Number
802.11b	2412-2472	13
802.11g		13
802.11n-HT20/ 802.11ax-HE20		13
802.11n-HT40/ 802.11ax-HE40	2422-2462	9
BT	2402-2480	79
BLE	2402-2480	40

Mode	Modulation	Data Rate (Mbps)
802.11b	DSSS(DBPSK/DQPSK/CCK)	Up to 11
802.11g	OFDM (BPSK/QPSK/16QAM/64QAM)	Up to 54
802.11n-HT20		Up to 144.4
802.11n-HT40		Up to 300
802.11ax-HE20	OFDMA (BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM/1024QAM)	Up to 287
802.11ax-HE40		Up to 574
BT	FHSS(GFSK, π/4DQPSK, 8-DPSK)	1/2/3
BLE	GFSK (1M, 2M, PHY Coded S8, PHY Coded S2)	2

802.11 b/g/n-HT20/ax-HE20 Channel List					
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
1	2412	6	2437	11	2462
2	2417	7	2442	12	2467
3	2422	8	2447	13	2472
4	2427	9	2452		
5	2432	10	2457		

802.11n-HT40/ax-HE40 Channel List					
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
3	2422	6	2437	9	2452
4	2427	7	2442	10	2457
5	2432	8	2447	11	2462

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BT Channel List							
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
00	2402	20	2422	40	2442	60	2462
01	2403	21	2423	41	2443	61	2463
02	2404	22	2424	42	2444	62	2464
03	2405	23	2425	43	2445	63	2465
04	2406	24	2426	44	2446	64	2466
05	2407	25	2427	45	2447	65	2467
06	2408	26	2428	46	2448	66	2468
07	2409	27	2429	47	2449	67	2469
08	2410	28	2430	48	2450	68	2470
09	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

BLE Channel List							
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
37	2402	09	2422	18	2442	28	2462
00	2404	10	2424	19	2444	29	2464
01	2406	38	2426	20	2446	30	2466
02	2408	11	2428	21	2448	31	2468
03	2410	12	2430	22	2450	32	2470
04	2412	13	2432	23	2452	33	2472
05	2414	14	2434	24	2454	34	2474
06	2416	15	2436	25	2456	35	2476
07	2418	16	2438	26	2458	36	2478
08	2420	17	2440	27	2460	39	2480

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2.6. Descriptions of Key Components

Item	Supplier	Model / Type	Character
Mother Board	ECS	CMLU-MINI	V:B 15-MS5-010021
COM Board	ECS	COM-MINI	V:B 15-MS5-050020
Chassis	JIAN FU	Z3 PLUS	117x128X35mm
	JIAN FU	Z3E PLUS	117x128X52.9mm
CPU (CPU Socket: FCBGA1528)	Intel	I3-10110U	2.1GHz
	Intel	I5-10210U	1.6GHz
	Intel	I7-10510U	1.8GHz
	Intel	I7-10710U	1.1GHz
DIMM (Max. 2pcs)	Ramonster	D4168G8HHSS9CJRB21	16GB DDR4 2666
		D44G4G8H8SS91JRB22	4GB DDR4 2666
	Goldkey	GKE800SO102408-2666A	8GB DDR4 2666
		GKE400SO51208-2666A	4GB DDR4 2666
	Team Group	TI9C5SD5C61203	4GB DDR4 2666
M.2 SSD	Team Group	TE128GS510SM80	M.2 SSD 128GB
	Foresee	P900F512GH	M.2 SSD 512GB
		P900F256GH	M.2 SSD 256GB
		P900F128GH	M.2 SSD 128GB
	Neo Forza	NFN025SA256	M.2 SSD 256GB
		NFN025SA328	M.2 SSD 128GB
SSD (Option with HDD)	Phison	SSB240GPTCB4ECS-S112	240GB
HDD (Option with SSD)	WD	WD10SPZX	1TB
	Seagate	ST1000LM048	1TB
	Seagate	ST1000LM035	1TB
WLAN+BT Combo Card	Intel	AX200NGW	802.11ax Dual band 2x2 160MHz NCC: CCAH19LP0850T0 FCC ID: PD9AX200NG IC: 1000M-AX200NG
Antenna	Linking	T-543-9291167-2	Main Black, PIFA Antenna
	Linking	T-543-9291167-1	AUX Gray, PIFA Antenna
Adapter	Asian Power	DA-90J19	I/P: AC100-240V, 50-60Hz, 1.5A Max. O/P: DC 19V, 4.74A
	FSP	FSP120-ABBN3	I/P: AC100-240V~, 50-60Hz, 1.8A Max. O/P: DC 19V, 6.32A
	DC Power Cord: Non-Shielded, Undetached, 1.8m AC Power Cord: Non-Shielded, Detached, 1.5m (3C)		

Remark: For more detailed features description, please refer to the manufacturer's specifications or the user manual.

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2.7. Description of Test Facility

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Accreditations	The laboratory is accredited by following organizations under ISO/IEC 17025:2017 (1) NVLAP(USA) NVLAP Lab Code 200077-0 (2) TAF(Taiwan) No. 1724

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