

TEST REPORT



Dt&C Co., Ltd.

42, Yurim-ro, 154Beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea, 17042
Tel : 031-321-2664, Fax : 031-321-1664

1. Report No : DRTFCC2407-0070(1)

2. Customer

• Name (FCC) : Point Mobile Co., LTD.

• Address (FCC) : B-9F Kabul Great Valley, 32, Digital-ro 9-gil, Geumcheon-gu, Seoul South Korea 08512

3. Use of Report : Spot Check Verification Test

4. Product Name / Model Name : Mobile Computer / PM95W

FCC ID : V2X-PM95W

5. FCC Regulation(s): Part 15.225, Part 15.247, Part 15.407

Test Method used: KDB558074 D01v05r02, KDB789033 D02v02r01, KDB987594 D02v01r01,
ANSI C63.10-2013

6. Date of Test : 2024-03-20 ~ 2024-06-19

7. Location of Test : ☒ Permanent Testing Lab ☐ On Site Testing

8. Testing Environment : See appended test report.

9. Test Result : Refer to the attached test result.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

This test report is not related to KOLAS accreditation.

Affirmation	Tested by	Technical Manager
	Name : SeungMin Gil 	Name : JaeJin Lee  (Signature)

2024 . 10 . 18 .

Dt&C Co., Ltd.

If this report is required to confirmation of authenticity, please contact to report@dtnc.net

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TRF-RF-243(02)240205

Pages: 1 / 11

Test Report Version

Test Report No.	Date	Description	Revised by	Reviewed by
DRTFCC2407-0070	Jul. 03, 2024	Initial issue	SeungMin Gil	JaeJin Lee
DRTFCC2407-0070(1)	Oct. 18.2024	Modifying Equipment Class	SeungMin Gil	JaeJin Lee

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1. General Information

1.1. Description of EUT

Equipment Class	NFC: Low Power Communications Device Transmitter (DXX) Bluetooth: Part 15 Spread Spectrum Transmitter (DSS) Bluetooth LE, WLAN(2.4GHz): Digital Transmission System (DTS) WLAN(5GHz): Unlicensed National Information Infrastructure TX(NII) WLAN(6GHz): 15E 6 GHz Low Power Indoor Client (6XD)
Product Name	MOBILE COMPUTER
Model Name	PM95W
Add Model Name	-
Firmware Version Identification Number	95.00xx
EUT Serial Number	Conducted: 23346A90001, Radiated: 23349A0015
Power Supply	DC 3.87 V

1.2. Declaration by the applicant / manufacturer

N/A

1.3. Testing Laboratory

Dt&C Co., Ltd.		
The 3 m test site and conducted measurement facility used to collect the radiated data are located at the 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042.		
The test site complies with the requirements of Part 2.948 according to ANSI C63.4-2014.		
- FCC & IC MRA Designation No. : KR0034		
- ISED#: 5740A		
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1.4. Testing Environment

Ambient Condition	
▪ Temperature	+21 °C ~ +23 °C
▪ Relative Humidity	+38 % ~ +42 %

1.5. Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with requirements of ANSI C63.4-2014 and ANSI C63.10-2013. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence.

Parameter	Measurement uncertainty
Radiated emission (1 GHz Below)	5.0 dB (The confidence level is about 95 %, $k = 2$)
Radiated emission (1 GHz ~ 18 GHz)	4.8 dB (The confidence level is about 95 %, $k = 2$)
Radiated emission (18 GHz Above)	5.7 dB (The confidence level is about 95 %, $k = 2$)

1.6. Test Equipment List

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	23/12/15	24/12/15	MY50410399
Spectrum Analyzer	Agilent Technologies	N9020A	23/06/23	24/06/23	US47360812
Spectrum Analyzer	Agilent Technologies	N9020A	23/12/15	24/12/15	MY50110097
DC Power Supply	Agilent Technologies	66332A	23/12/15	24/12/15	GB37470191
Bluetooth Tester	TESCOM	TC-3000C	23/06/23	24/06/23	3000C000563
Multimeter	FLUKE	17B+	23/12/15	24/12/15	36390701WS
Signal Generator	Rohde Schwarz	SMBV100A	23/12/15	24/12/15	255571
Signal Generator	ANRITSU	MG3695C	23/12/15	24/12/15	173501
Thermohygrometer	BODYCOM	BJ5478	23/12/15	24/12/15	120612-1
Thermohygrometer	BODYCOM	BJ5478	23/12/15	24/12/15	090205-4
Thermohygrometer	BODYCOM	BJ5478	23/06/23	24/06/23	N/A
Loop Antenna	ETS-Lindgren	6502	23/11/09	24/11/09	00060496
Hybrid Antenna	Schwarzbeck	VULB 9160	23/12/15	24/12/15	3362
Horn Antenna	ETS-Lindgren	3117	23/06/23	24/06/23	00143278
Horn Antenna	A.H.Systems Inc.	SAS-574	23/06/23	24/06/23	155
PreAmplifier	tsj	MLA-0118-B01-40	23/12/15	24/12/15	1852267
PreAmplifier	tsj	MLA-1840-J02-45	23/06/23	24/06/23	16966-10728
PreAmplifier	H.P	8447D	23/12/15	24/12/15	2944A07774
High Pass Filter	Wainwright Instruments	WHKX12-935-1000-15000-40SS	23/06/23	24/06/23	8
High Pass Filter	Wainwright Instruments	WHKX10-2838-3300-18000-60SS	23/06/23	24/06/23	1
High Pass Filter	Wainwright Instruments	WHNX8.0/26.5-6SS	23/06/23	24/06/23	3
Power Splitter	Anritsu	K241B	23/12/15	23/12/15	016681
Attenuator	Hefei Shunze	SS5T2.92-10-40	23/06/23	24/06/23	16012202
Attenuator	Aeroflex/Weinschel	56-3	23/06/23	24/06/23	Y2370
Attenuator	SMAJK	SMAJK-2-3	23/06/23	24/06/23	3
Attenuator	SMAJK	SMAJK-2-3	23/06/23	24/06/23	2
Attenuator	Aeroflex/Weinschel	86-10-11	23/06/23	24/06/23	408
Power Meter & Wide Bandwidth Sensor	Anritsu	ML2496A MA2411B	23/12/15	24/12/15	1338004 1911481
Cable	DT&C	Cable	24/01/03	25/01/03	G-2
Cable	HUBER+SUHNER	SUCOFLEX 100	24/01/03	25/01/03	G-3
Cable	DT&C	Cable	24/01/03	25/01/03	G-4
Cable	OMT	YSS21S	24/01/03	25/01/03	G-5
Cable	Junkosha	MWX241	24/01/03	25/01/03	mmW-1
Cable	Junkosha	MWX241	24/01/03	25/01/03	mmW-4
Cable	HUBER+SUHNER	SUCOFLEX100	24/01/03	25/01/03	M-1
Cable	HUBER+SUHNER	SUCOFLEX100	24/01/03	25/01/03	M-2
Cable	JUNKOSHA	MWX241/B	24/01/03	25/01/03	M-3
Cable	JUNKOSHA	J12J101757-00	24/01/03	25/01/03	M-7
Cable	HUBER+SUHNER	SUCOFLEX106	24/01/03	25/01/03	M-9
Test Software	tsj	Radiated Emission Measurement	NA	NA	Version 2.00.0185

Note1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017.

Note2: The cable is not a regular calibration item, so it has been calibrated by Dt&C itself.

2. Explanations for Reference Test Data

2.1. Introduction

The purpose of this report is to refer to the reference device test data for the variant device according to KDB 484596 D01v02r03.

Reference device information

FCC ID: V2X-PM95

Capability	Equipment Class	FCC Rule part
NFC	DXX	15.225
Bluetooth(BDR/EDR)	DSS	15.247
Bluetooth LE	DTS	15.247
WLAN(2.4GHz)	DTS	15.247
WLAN(5GHz)	NII	15.407
WLAN(6GHz)	6XD	15.407
WWAN(GSM, WCDMA, LTE, 5GNR)	PCE	22, 24, 27, 90
WWAN(LTE, 5GNR)	CBE	96

The applicant takes full responsibility that the test data as referenced in test report represent compliance for FCC ID: V2X-PM95W.

2.2. Explain the Differences

The variant device(FCC ID: V2X-PM95W) uses the same materials, form factors, PCB layouts, components as reference device(FCC ID: V2X-PM95). And the all components and RF circuits for WLAN/BT(BDR,EDR, LE)/NFC of variant device are the same as reference device.

The difference between the variant device and reference device is as below:

- Removed WWAN(GSM/WCDMA/LTE) components

2.3. Spot Check Verification Data

KDB 484596 D01v02r03 Section 3

The variant filings must demonstrate that the referenced test data remain valid for the variant device by including spot-check measurements that meet the following criteria:

- Spot-check measurements shall be made in correspondence to the worst-case scenario reported in the reference device filing, i.e., for those conditions that are the closest to non-compliance.
- Spot-check measurements, while being always compliant with the applicable rule part(s) for the test under consideration, may show a deviation d_{dB} from the reference data no larger than 3 dB (applicable for both field and power quantities):

$$d_{dB} = |V_{dB} - R_{dB}| \leq 3 \text{ dB}, (1)$$

where between V_{dB} , the variant spot-check level in dB, and R_{dB} is the corresponding measurement level in dB for the reference model.

- An alternative to the limit of eq. (1) is available, and is based on considering how far the reference data R_{dB} is from the compliance threshold C_{dB} (also expressed in dB), for the particular test under consideration. In this case, if $M_{dB} = |C_{dB} - R_{dB}|$ is the margin in dB from the compliance limit, a spot check may be considered acceptable when the deviation d_{dB} from the reference data satisfies the following condition:

$$d_{dB} = |V_{dB} - R_{dB}| \leq (3 + M_{dB}/20) \text{ dB}, \text{ for } 0 \leq M_{dB} \leq 60 \text{ dB} \quad . (2)$$

$$d_{dB} = |V_{dB} - R_{dB}| = 6 \text{ dB}, \text{ for } M_{dB} > 60 \text{ dB}$$

When using the option in eq. (2), d_{dB} increases linearly from 3 dB to 6 dB (as shown in Fig. 2):

- for $M_{dB} = 0$ dB, then $d_{dB} = 3$ dB, that is when R_{dB} is right at the compliance threshold C_{dB} , thus the margin $M_{dB} = 0$ and the variant can only be allowed to go lower than R_{dB} ;
- for $M_{dB} = 60$ dB, then $d_{dB} = 6$ dB, i.e., the reference model data is 60 dB below the compliance threshold M_{dB} .

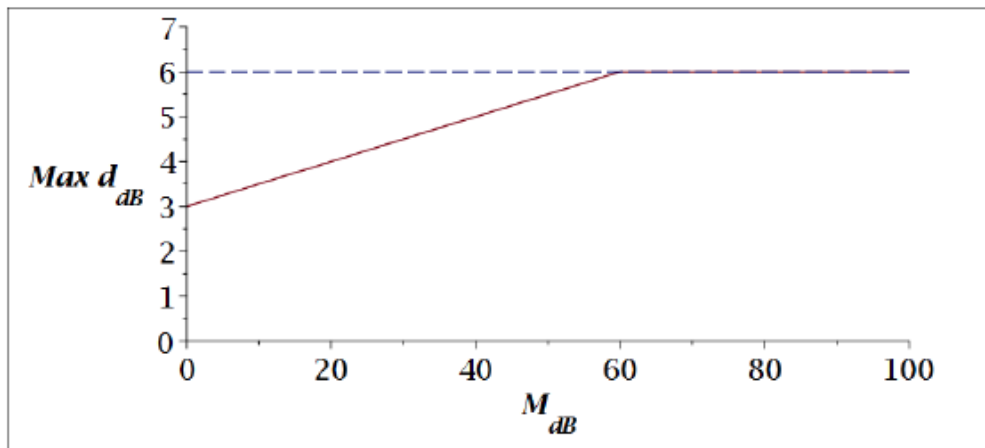


Figure 2 – The piecewise linear function for the maximum spot-check deviation, as given by eq. (2)

Comparison results between reference device and variant device

Peak Conducted Output Power

Capability (Equipment Class)	Mode	TX Frequency(MHz)	Tones/RU Index	FCC ID: V2X-PM95 Reference Device Result(dBm)	FCC ID: V2X-PM95W Variant Device Result(dBm)	Deviation (dB)
Bluetooth (DSS)	3 Mbps	2402	-	3.25	3.12	-0.13
		2441	-	5.60	5.29	-0.31
		2480	-	4.66	4.34	-0.32
Bluetooth LE (DTS)	2 Mbps (transmitter IC: nRF52820)	2402	-	-0.98	-1.16	-0.18
		2440	-	-0.93	-1.15	-0.22
		2480	-	-0.99	-1.26	-0.27
Bluetooth LE (DTS)	2 Mbps (transmitter IC: WCN-6856)	2402	-	3.16	3.19	0.03
		2440	-	5.13	5.52	0.39
		2480	-	4.41	4.25	-0.16
WLAN: 2.4GHz (DTS)	802.11ax(HE40)	2 422	26 / 0	26.00	26.39	0.39
		2 437	26 / 0	27.06	26.59	-0.47
		2 452	26 / 0	25.46	25.46	0.00

Maximum Conducted Output Power

Capability (Equipment Class)	Mode	TX Frequency(MHz)	Tones/RU Index	FCC ID: V2X-PM95 Reference Device Result(dBm)	FCC ID: V2X-PM95W Variant Device Result(dBm)	Deviation (dB)
WLAN: 5GHz (NII)	802.11n(HT40)	5230	-	17.46	16.67	-0.79
		5270	-	17.46	16.64	-0.82
		5510	-	16.91	16.55	-0.36
		5755	-	16.64	16.16	-0.48

Maximum e.i.r.p

Capability (Equipment Class)	Mode	TX Frequency(MHz)	Tones/RU Index	FCC ID: V2X-PM95 Reference Device Result(dBm)	FCC ID: V2X-PM95W Variant Device Result(dBm)	Deviation (dB)
WLAN: 6GHz (6XD)	802.11ax(HE160)	6185	2X996 / 68	17.39	16.65	-0.74
		6505	2X996 / 68	16.66	16.32	-0.34
		6665	2X996 / 68	17.06	16.34	-0.72
		6985	2X996 / 68	16.87	16.13	-0.74

Maximum Power Spectral Density

Capability (Equipment Class)	Mode	TX Frequency(MHz)	Tones/RU Index	FCC ID: V2X-PM95 Reference Device Result(dBm)	FCC ID: V2X-PM95W Variant Device Result(dBm)	Deviation (dB)
WLAN: 5GHz (NII)	802.11ax(HE20)	5200	26 / 0	10.08	9.74	-0.34
		5260	26 / 0	9.71	9.36	-0.35

Maximum Power Spectral Density(e.i.r.p)

Capability (Equipment Class)	Mode	TX Frequency(MHz)	Tones/RU Index	FCC ID: V2X-PM95 Reference Device Result(dBm)	FCC ID: V2X-PM95W Variant Device Result(dBm)	Deviation (dB)
WLAN: 6GHz (6XD)	802.11ax(HE80)	6145	26 / 36	-1.84	-1.41	-0.43
	802.11ax(HE20)	6435	26 / 8	-1.90	-2.22	0.32
	802.11ax(HE160)	6665	26 / 0L	-1.67	-1.83	0.16
	802.11ax(HE20)	6875	26 / 0	-1.92	-1.95	0.03

Note: The variant spot-check level meek KDB 484596D01 v02r01 Section 3 eq.(1).

Radiated Test Items

Capability (Equipment Class)	Mode	TX Freq. (MHz)	Tones/RU Index	Test item	Detector Mode	FCC ID: V2X-PM95 Reference Device		FCC ID: V2X-PM95W Variant Device		Deviation (dB)
						Frequency (MHz)	Result (dBuV/m)	Frequency (MHz)	Result (dBuV/m)	
NFC (DXX)	ASK	13.56	-	In-band emission	Peak	13.56	56.20	13.56	53.40	-2.80
	ASK	13.56	-	Out-of band emission	Peak	40.68	34.00	40.68	35.50	1.50
Bluetooth (DSS)	3 Mbps	2480	-	Band edge	Peak	2485.71	57.45	2497.06	57.99	0.54
	3 Mbps	2480	-	Spurious emission	Peak	4959.79	52.24	4959.32	52.42	0.18
Bluetooth LE (DTS)	2 Mbps (transmitter IC: nRF52820)	2480	-	Band edge	Average	2487.92	47.21	2486.33	47.40	0.19
		2480	-	Spurious emission	Average	4959.36	43.80	4959.37	43.65	-0.15
Bluetooth LE (DTS)	2 Mbps (transmitter IC: WCN-6856)	2480	-	Band edge	Average	2494.00	49.93	2488.19	49.47	-0.46
		2440	-	Spurious emission	Average	4871.71	43.89	4878.44	43.94	0.05
WLAN: 2.4GHz (DTS)	802.11ax(HE40)	2452	484 / 65	Band edge	Average	2483.51	51.91	2483.85	51.45	-0.46
	802.11b	2412	-	Spurious emission	Average	4823.72	42.71	4823.96	41.94	-0.77
WLAN: 5GHz (NII)	802.11ac(VHT160)	5250	-	Band edge	Average	5149.65	51.14	5149.17	50.80	-0.34
	802.11n(HT40)	5310	-	Band edge	Average	5350.91	51.50	5352.84	51.71	0.21
	802.11ac(VHT160)	5570	-	Band edge	Average	5457.71	51.61	5459.65	50.32	-1.29
	802.11ax(HE80)	5210	26 / 0	Spurious emission	Peak	6946.72	67.02	6946.69	64.64	-2.38
	802.11ax(HE80)	5290	996 / 67	Spurious emission	Peak	7053.37	66.08	7053.31	65.26	-0.82
	802.11ax(HE80)	5530	26 / 0	Spurious emission	Average	7704.07	51.22	7703.83	49.26	-1.96
WLAN: 6GHz (6XD)	802.11ax(HE20)	5935	26 / 0	Band edge	Average	5924.99	65.83	5924.99	63.20	-2.63
	802.11ax(HE20)	7115	52 / 40	Band edge	Average	7125.01	65.70	7125.01	63.73	-1.97
	802.11ax(HE20)	5935	26 / 4	Spurious emission	Average	11869.85	44.59	11870.65	43.75	-0.84

Note: The variant spot-check level meek KDB 484596D01 v02r01 Section 3 eq.(1).

2.4. Reference Section

Reference FCC ID: V2X-PM95

Equipment Class	Capability	FCC part	Frequency Range(MHz)	Exhibit type	Report title	Reference Sections
DXX	NFC	15.225	13.56	Original Grant	Test Report(DXX-NFC)	All sections
DSS	Bluetooth(BDR/EDR)	15.247	2402~2480MHz	Original Grant	Test Report(DSS-BT)	All sections
DTS	Bluetooth LE	15.247	2402~2480MHz	Original Grant	Test Report(DTS-LE)	All sections
DTS	WLAN	15.247	2412~2462MHz	Original Grant	Test Report(DTS-WLAN)	All sections
NII	WLAN	15.407	5180~5240MHz, 5250 MHz 5260~5320MHz, 5500~5720MHz, 5745~5825MHz	Original Grant	Test Report(UNII-WLAN)	All sections except the DFS Testing
6XD	WLAN	15.407	5935~7115MHz	Original Grant	Test Report(6XD-WLAN)	All sections