Audix Technology Corp.
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FCC 15.225
13.56MHz Report

for

Elitegroup Computer Systems Co., Ltd.

No. 239, Sec. 2, Ti Ding Blvd,
Taipei, Taiwan 11493

Product Name	**:**	**7" Multi Function Pad**
Model Name	**:**	**mPAD2-7…….**
Brand	**:**	**ECS**
FCC ID	**:**	**WL6TC7A-W**

Prepared by: **:** **AUDIX Technology Corporation,**
EMC Department

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TEST REPORT CERTIFICATION

Applicant	:	Elitegroup Computer Systems Co., Ltd.
EUT Description		
(1) Product	:	7" Multi Function Pad
(2) Model	:	mPAD2-7…….
(3) Brand	:	ECS

Applicable Standards:

47 CFR FCC Part 15 Subpart C
ANSI C63.10:2013

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.

Date of Report: 2017. 03. 15

Reviewed by: (Tina Huang/Administrator)

Approved by: (Ben Cheng/Manager)

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1. REVISION RECORD OF TEST REPORT

Edition No	Issued Data	Revision Summary	Report Number
0	2017. 03. 15	Original Report	EM-F170102

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2. SUMMARY OF TEST RESULTS

Rule	Description	Results
15.207	Conducted Emission	**PASS**
15.225(a)(b)(c)	Radiation Emission (In-Band)	**PASS**
15.225(d)/15.209	Radiation Emission (Out-Band)	**PASS**
15.215 (c)	20dB Bandwidth	**PASS**
15.225(e)	Frequency Stability Tolerance	**PASS**

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3. GENERAL INFORMATION

3.1. Description of Application

Applicant	Elitegroup Computer Systems Co., Ltd. No. 239, Sec. 2., TiDing Blvd., Taipei, Taiwan 11493
Product	7" Multi Function Pad
Model	mPAD2-7……. (The "." in the model name can be 0 to 9, A to Z, a to z, "-", "_", "\","/" or blank for marketing use only)
Brand	ECS

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3.2. Description of EUT

<table>
<tr><td>Test Model</td><td>mPAD2-7-CHT4-I</td></tr>
<tr><td>Serial Number</td><td>N/A</td></tr>
<tr><td>Power Rating</td><td>Refer to AC adapter rating.</td></tr>
<tr><td>RF Features</td><td>WLAN:802.11a/b/g/n/ac
Bluetooth: BT and BLE
NFC, GPS</td></tr>
<tr><td>Transmit Type</td><td>
<table>
<tr><th colspan="2">2.4 GHz</th></tr>
<tr><td>802.11b</td><td>2T2R</td></tr>
<tr><td>802.11g</td><td>2T2R</td></tr>
<tr><td>802.11n-HT20</td><td>2T2R</td></tr>
<tr><td>802.11n-HT40</td><td>2T2R</td></tr>
<tr><td>BT/BLE</td><td>1T1R</td></tr>
</table>
<table>
<tr><th colspan="2">UNII Bands</th></tr>
<tr><td>802.11a</td><td>2T2R</td></tr>
<tr><td>802.11n-HT20/
802.11ac-VHT20</td><td>2T2R</td></tr>
<tr><td>802.11n-HT40/
802.11ac-VHT40</td><td>2T2R</td></tr>
<tr><td>802.11ac-VHT80</td><td>2T2R</td></tr>
</table>
<table>
<tr><th colspan="2">13.56MHz</th></tr>
<tr><td>NFC</td><td>1T1R</td></tr>
</table>
</td></tr>
<tr><td>Accessories</td><td>• Barcode Scanner mPAD (Option)
• SCR mPAD (Option)
• MSR Module (Option)
• USB Ethernet mPAD (Option)
• 7” Pad Docking (Option)
• 30 Pin to USB Cable
• 30 Pin to HDMI Cable
• 30 Pin to DC Jack Cable
• Power Adapter</td></tr>
<tr><td>Date of Receipt</td><td>2017. 01. 25</td></tr>
<tr><td>Date of Test</td><td>2017. 03. 10 ~ 15</td></tr>
</table>

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3.3. EUT Specifications Assessed in Current Report

Mode	Fundamental Range (MHz)	Channel Number	Modulation
NFC	13.56	1	ASK

3.4. Antenna Information

GPS Antenna					
No.	**Antenna Part Number**	**Manufacture**	**Antenna Type**	**Frequency (MHz)**	**Max Gain (dBi)**
1	13-130-JC5150	Joinsoon Electronics MFG. CO.,LTD	PCB	1510 to 1602	**4.62**

2.4G Antenna					
No.	**Antenna Part Number**	**Manufacture**	**Antenna Type**	**Frequency (MHz)**	**Max Gain (dBi)**
1	13-130-002075 (Tx1 Antenna)	Joinsoon Electronics MFG. CO.,LTD	PIFA	2400 to 2500	-2.53
2	13-130-002076 (Tx2 Antenna)		PIFA	2400 to 2500	-1.15

5G Antenna					
No.	**Antenna Part Number**	**Manufacture**	**Antenna Type**	**Frequency (MHz)**	**Max Gain (dBi)**
1	13-130-002075 (Tx1 Antenna)	Joinsoon Electronics MFG. CO.,LTD	PIFA	5150 to 5350	-0.53
2				5470 to 5725	0.82
3				5725 to 5850	0.82
4	13-130-002076 (Tx2 Antenna)	Joinsoon Electronics MFG. CO.,LTD	PIFA	5150 to 5350	0.90
5				5470 to 5725	0.53
6				5725 to 5850	0.53

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3.5. Description of Key Components

3.5.1. For the All Component Lists

Item	Supplier	Model / Type	Character
Main Board	ECS	TC71A	---
CPU (Socket: BGA1380)	Intel	Z8550	1.44GHz, up to 2.4GHz
Memory (On Board)	SK hynix	H9CCNNNBPTBL	LPDDR3 1600MHz 4GB
7” LCD Panel	KD	KD070D30-31NB-A18	LCD.WXGA.7.800*1280
Touch Module	TOPGROUP EETI	ZC-122A-0776AT EXC3102	Support 10-points multi-touch(Capacivtive)
Storage	SanDisk	SDINADF4-64G	64GB
	SanDisk	SDIN9DW4-32G	32GB
Front Camera	Brodsands	BLX2722E-TC7AW-F	Front Camera : 2.0M
Rear Camera	Brodsands	BLX8858E-TC7AW-CB	Rear Camera: 8.0M
Wi-Fi +BT Module	Qualcomm (Azurewave)	QCNFA324 (AW-CM217NF)	Wi-Fi 802.11 a/b/g/n/ac + BT 4.0
GPS	Boradcam	BCM4752	GPS&GLONASS
NFC	NXP	NPC100	---
Battery	Sunwoda	MICA-071	3.7Vdc,4100mAh / 15.17Wh
AC Adapter	Asian Power Devices Inc.	WA-36A12R (Wall-mount, 2C)	I/P: AC 100-240V, 50-60Hz, 0.9A Max. O/P: DC 12V, 3A
	DC Power Cord: Unshielded, Undetachable, 1.8m With one ferrite core		
mPad Module (Option)	ECS	Barcode Scanner mPAD	Barcode Scanner
	ECS	SCR mPAD	Smart Card Reader (SCR)
	ECS	MSR mPAD	Magnetic Stripe Reader (MSR)
	ECS	USB Ethernet mPAD	Giga LAN Port
7" Pad Docking (Option)	ECS	DOCKING mPAD-7	Docking

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

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3.5.2. The EUT collocates with following worst components, which are used to establish a basic configuration of system during test:

Item	Supplier	Model / Type	Character
Main Board	ECS	TC71A	---
CPU (Socket: BGA1380)	Intel	Z8550	1.44GHz, up to 2.4GHz
Memory (On Board)	SK hynix	H9CCNNNBPTBL	LPDDR3 1600MHz 4GB
7” LCD Panel	KD	KD070D30-31NB-A18	LCD.WXGA.7.800*1280
Touch Module	TOPGROUP EETI	ZC-122A-0776AT EXC3102	Support 10-points multi-touch(Capacivtive)
Storage	SanDisk	SDIN9DW4-32G	32GB
Front Camera	Brodsands	BLX2722E-TC7AW-F	Front Camera : 2.0M
Rear Camera	Brodsands	BLX8858E-TC7AW-CB	Rear Camera: 8.0M
Wi-Fi +BT Module	Qualcomm (Azurewave)	QCNFA324 (AW-CM217NF)	Wi-Fi 802.11 a/b/g/n/ac + BT 4.0
GPS	Boradcam	BCM4752	GPS&GLONASS
NFC	NXP	NPC100	---
Battery	Sunwoda	MICA-071	3.7Vdc,4100mAh / 15.17Wh
AC Adapter	Asian Power Devices Inc.	WA-36A12R (Wall-mount, 2C)	I/P: AC 100-240V, 50-60Hz, 0.9A Max. O/P: DC 12V, 3A
	DC Power Cord: Unshielded, Undetachable, 1.8m With one ferrite core		
mPad Module (Option)	ECS	Barcode Scanner mPAD	Barcode Scanner
7" Pad Docking (Option)	ECS	DOCKING mPAD-7	Docking

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3.6. Test Configuration

AC Conduction	
Test Case	Normal operation

Item		Mode	Test Channel
Radiated Test Case	Radiated Spurious Emission (In-Band)	NFC	1
	Radiated Spurious Emission (Out-Band) Note1	NFC	1
Conducted Test Case	20dB Bandwidth	NFC	1
	Frequency Stability	NFC	1

Note 1:

■Mobile Device: Device was pre-assessed with docking and portable (3 axis), the worst case (side) is tested with docking.

□Portable Device, and 3 axis were assessed.

- □ Lie
- □ Side
- □ Stand

3.7. Tested Supporting System List

3.7.1. Support Peripheral Unit

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	TV	LG	22LK330-DB	N/A	N/A
2.	USB Mouse	DELL	MOC5UO	J0M02S8L	By DoC
3.	USB Storage Media	Toshiba	Hayabusa	N/A	N/A

3.7.2. Cable Lists

No.	Cable Description Of The Above Support Units
1.	HDMI Cable: Unshielded, Detachable, 1.0m AC Power Cord: Unshielded, Detachable, 1.5m
2.	USB Cable: Unshielded, Detachable, 1.5m
3.	---
4.	LAN Cable: Unshielded, Detachable, 1.0m

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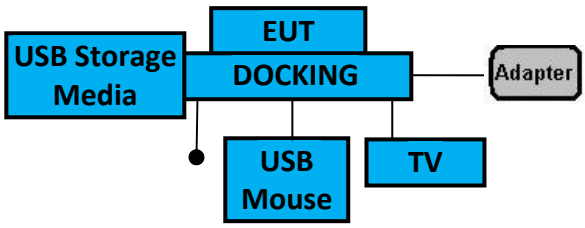
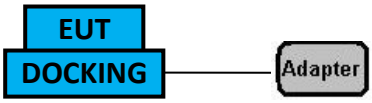
3.8. Setup Configuration

3.8.1. EUT Configuration for Power Line & Radiated Emission



3.8.2. EUT Configuration for RF Conducted Test Items



3.9. Operating Condition of EUT

Test program "QCA Radio Control Toolkit" is used for enabling EUT NFC function under continues transmitting and choosing data rate/ channel.

3.10. Description of Test Facility

Name of Test Firm	Audix Technology Corporation / EMC Department No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan Tel: +886-2-26092133 Fax: +886-2-26099303 Website : www.audixtech.com Contact e-mail: sales@audixtech.com
Accreditations	The laboratory is accredited by following organizations under ISO/IEC 17025:2005 (1) NVLAP(USA) NVLAP Lab Code 200077-0 (2) TAF(Taiwan) No. 1724 (3) FCC OET Designation No. TW1004 & TW1090
Test Facilities	(1) No. 8 Shielding Room (2) Semi-Anechoic Chamber (IC Test Site Registration No.: 5183B-1) (3) Fully Anechoic Chamber (IC Test Site Registration No.: 5183B-4)

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3.11.Measurement Uncertainty

Test Item	Frequency Range	Uncertainty
Conduction Test	150kHz~30MHz	±3.50dB
Radiation Test (Distance: 3m)	30MHz~1000MHz	± 3.68dB
	Above 1GHz	± 5.82dB

Remark：Uncertainty = $ku_c(y)$

Test Item	Uncertainty
20dB Bandwidth	± 0.2kHz
Frequency Stability	±0.78ppm

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4. MEASUREMENT EQUIPMENT LIST

4.1. Conducted Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
1.	Test Receiver	R&S	ESR3	101774	2017. 02. 07	2018. 02. 06
2.	A.M.N.	R&S	ENV4200	100169	2016. 04. 21	2017. 04. 20
3.	L.I.S.N.	Kyoritsu	KNW-407	8-855-9	2016. 12. 23	2017. 12. 22
4.	Pulse Limiter	R&S	ESH3-Z2	100354	2017. 01. 16	2018. 01. 15
5.	Test Software	Audix	e3	V.6.120424	N.C.R.	N.C.R.

4.2. Radiated Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
1.	Spectrum Analyzer	Agilent	N9010A-526	MY53400071	2016. 09. 19	2017. 09. 18
2.	Spectrum Analyzer	Agilent	N9010A-526	MY52220368	2016. 12. 01	2017. 11. 30
3.	Test Receiver	R & S	ESCS30	100338	2016. 06. 22	2017. 06. 21
4.	Amplifier	HP	8447D	2944A06305	2017. 02. 16	2018. 02. 15
5.	Bilog Antenna	CHASE	CBL6112D	33821	2017. 01. 21	2018. 01. 20
6.	Loop Antenna	R&S	HFH2-Z2	891847/27	2016. 12. 23	2017. 12. 22
7.	Test Software	Audix	e3	V.6.110601	N.C.R.	N.C.R.

4.3. RF Conducted Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
1.	Spectrum Analyzer	Agilent	N9010A-507	MY52220264	2016. 08. 09	2017. 08. 08
2.	Programmable Temperature & Humidity Chamber	GIANT	GTH-150-40-CP-AR	MAA1505-008	2016. 05. 11	2017. 05. 10
3.	Transformer	TAILI	TL-220	N/A	N.C.R.	N.C.R.

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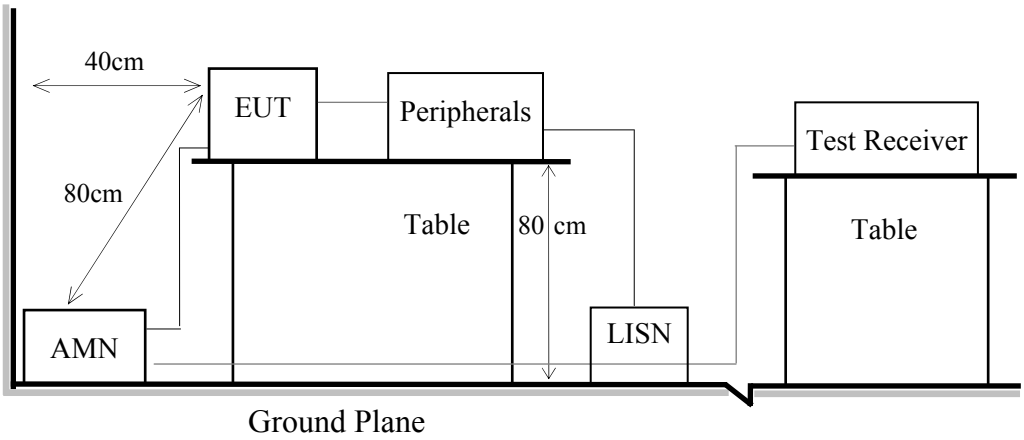
5. CONDUCTED EMISSION

5.1. Block Diagram of Test Setup

5.1.1. Block Diagram of EUT

Indicated as section 3.8

5.1.2. Shielded Room Setup Diagram



5.2. Conducted Emission Limit

Frequency	Conducted Limit	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dBμV	56 ~ 46 dBμV
500kHz ~ 5MHz	56 dBμV	46 dBμV
5MHz ~ 30MHz	60 dBμV	50 dBμV

Remark 1.: If the average limit is met when using a Quasi-Peak detector, the measurement using the average detector is not required.
2.: The lower limit applies to the band edges.

5.3. Test Procedure

5.3.1. To set up the EUT as indicated in ANSI C 63.10. The EUT was placed on the table which has 80 cm height to the ground and 40 cm distance to the conducting wall.

5.3.2. Power supplier of the EUT was connected to the AC mains through an Artificial Mains Network (A.M.N.).

5.3.3. The AC power supplies to all peripheral devices must be provided through line impedance stabilization network (L.I.S.N.)

5.3.4. Checking frequency range from 150 kHz to 30 MHz and record the emission which does not have 20 dB below limit.

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5.4. Test Results

Please refer to Appendix A.

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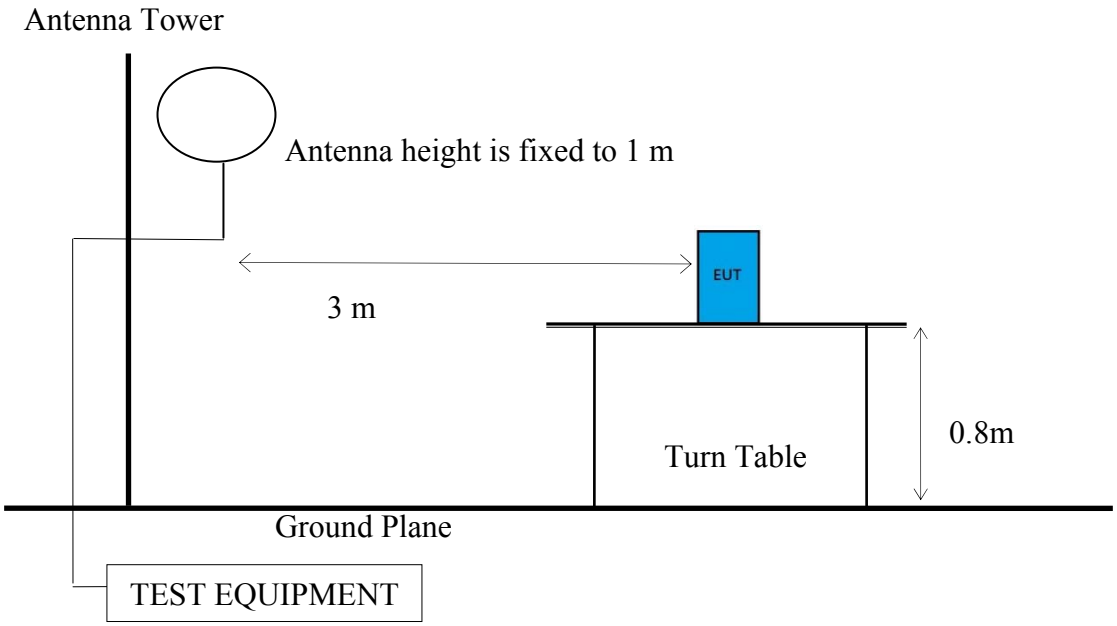
6. RADIATED EMISSION (IN-BAND)

6.1. Block Diagram of Test Setup

6.1.1. Block Diagram of EUT

Indicated as section 3.8

6.1.2. Setup Diagram for 9kHz-30MHz



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6.2. Radiated Emission Limits

Frequency (MHz)	Distance (m)	Limits	
		μV/m	dBμV/m
13.553-13.567	30	15848	84
	3	1584893	124
13.410 -13.553 and 13.567-13.710	30	334	50.50
	3	33381	90.50
13.110 -13.410 and 13.710-14.010	30	106	40.5
	3	10592	80.50

Remark：(1) dBμV/m = 20 log (μV/m)
(2) 15848uV/m= 84dBuV/m=84+40log(30m/3m)=124dBuV/m
334uV/m= 50.5dBuV/m=50.5+40log(30m/3m)=90.5dBuV/m
106uV/m= 40.5dBuV/m=40.5+40log(30m/3m)=80.5dBuV/m

6.3. Test Procedure

Frequency Range 9kHz~30MHz:

The EUT setup on the turn table which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

(1) RBW = 9kHz with peak and average detector.
(2) Detector: average and peak (10kHz-490kHz)
Q.P. (490kHz-30MHz)

6.4. Test Results

Please refer to Appendix A.

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7. RADIATED EMISSION (OUT-BAND)

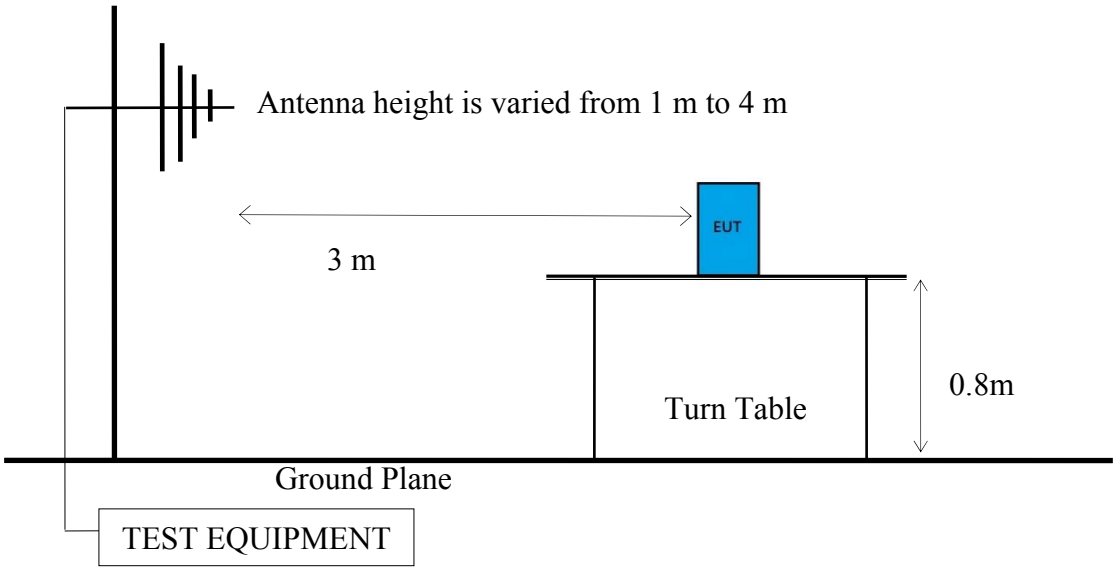
7.1. Block Diagram of Test Setup

7.1.1. Block Diagram of EUT

Indicated as section 3.8

7.1.2. Setup Diagram for 30-1000 MHz

Antenna Tower



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7.2. Radiated Emission Limits

In any 100kHz bandwidth outside the frequency band, the radio frequency power produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205 must also comply with the radiated emission limits specified as below.

Frequency (MHz)	Distance (m)	Limits	
		dBμV/m	μV/m
0.009 - 0.490	300	67.6	2400/kHz
0.490 - 1.705	30	87.6	24000/kHz
1.705 - 30	30	29.5	30
30 - 88	3	40.0	100
88- 216	3	43.5	150
216- 960	3	46.0	200
Above 960	3	54.0	500
Above 1000	3	74.0 dBμV/m (Peak) 54.0 dBμV/m (Average)	

Remark：(1) dBμV/m = 20 log (μV/m)
(2) The tighter limit applies to the edge between two frequency bands.
(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
(4) Fundamental and emission fall within operation band are exempted from this section.
(5) Pursuant to ANSI C63.10: 6.6.4.3, if the maximized peak measured value complies with the average limit, then it is unnecessary to perform an average measurement.

7.3. Test Procedure

The EUT setup on the turn table which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna varied from 1 m to 4 m to find the maximum emission level. Both horizontal and vertical polarization are required. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 regulation.

Frequency Range 30MHz~1GHz:

Spectrum Analyzer is used for pre-testing with following setting:

(1)RBW = 120KHz

(2)VBW ≥ 3 x RBW.

(3)Detector = Peak.

(4)Sweep time = auto.

(5)Trace mode = max hold.

(6)Allow sweeps to continue until the trace stabilizes.

(7)When peak-detected value is lower than limit that the measurement using the Q.P. detector is not required. Otherwise using Q.P. for finally measurement.

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7.4. Measurement Result Explanation

■Peak Emission Level=Antenna Factor + Cable Loss + Meter Reading

7.5. Test Results

Please refer to Appendix A.

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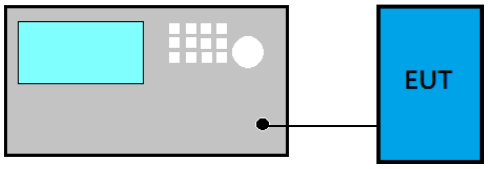
8. 20dB BANDWIDTH

8.1. Block Diagram of Test Setup



8.2. Specification Limits

The 20dB bandwidth shall be specified in operating frequency band.

8.3. Test Procedure

Following measurement procedure:

(1) Set RBW close to1% of OBW.
(2) Set the video bandwidth (VBW) ≥ 3 × RBW.
(3) Detector = Peak.
(4) Trace mode = max hold.
(5) Sweep = auto couple.
(6) Allow the trace to stabilize.
(7) Setting channel bandwidth function x dB to -20 dB to record the final bandwidth.

8.4. Test Results

Please refer to Appendix A

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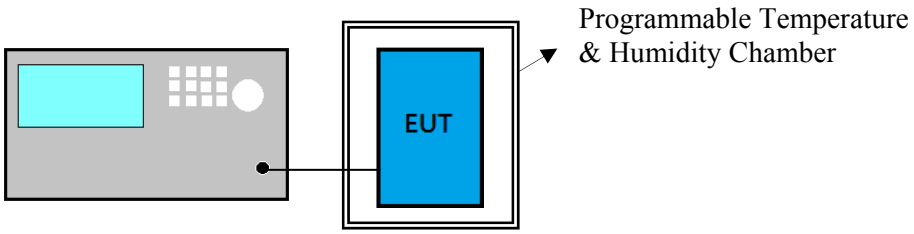
9. FREQUENCY STABILITY

9.1. Block Diagram of Test Setup



9.2. Specification Limits

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of -20degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degree C.

9.3. Test Procedure

The device operating in the 13.553-13.567MHz shall maintain the carrier frequency within 0.01% of the operating frequency over the temperature variation of -20 degrees to +50 degree C at normal supply voltage.

9.4. Test Results

Please refer to Appendix A

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10. DEVIATION TO TEST SPECIFICATIONS

【NONE】

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APPDNDIX A

TEST DATA AND PLOTS

(Model: mPAD2-7-CHT4-I)

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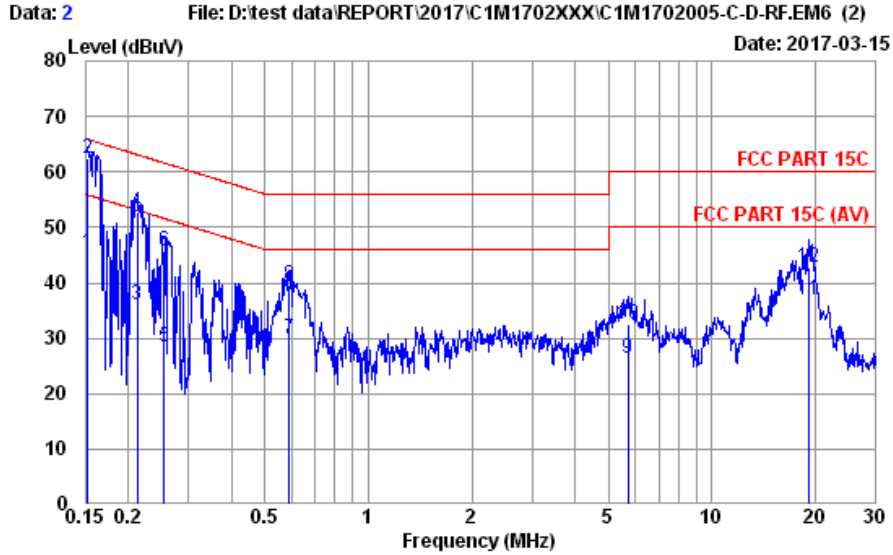
A.1 CONDUCTED EMISSION

Test Date	2017/03/15	Temp./Hum.	23℃/52%
Test Voltage	AC 120V, 60Hz (with Docking via AC Adapter)		



Site no. : No.8 Shielded Room Data no. : 2
Condition : ENV4200 358/003 LISN Phase : NEUTRAL
Limit : FCC PART 15C
Env. / Ins. : 23°C / 52% ESR3 (1774) Engineer : Jemy
EUT : mPAD-7-CHT4-I
Power Rating : 120Vac/60Hz
Test Mode : Operating

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.152	10.30	0.03	9.86	25.11	45.30	55.88	10.58	Average
2	0.152	10.30	0.03	9.86	42.19	62.38	65.88	3.50	QP
3	0.213	10.33	0.03	9.86	15.96	36.18	53.10	16.92	Average
4	0.213	10.33	0.03	9.86	32.39	52.61	63.10	10.49	QP
5	0.255	10.32	0.03	9.86	8.28	28.49	51.59	23.10	Average
6	0.255	10.32	0.03	9.86	25.45	45.66	61.59	15.93	QP
7	0.588	10.28	0.05	9.86	9.66	29.85	46.00	16.15	Average
8	0.588	10.28	0.05	9.86	19.27	39.46	56.00	16.54	QP
9	5.711	10.29	0.14	9.87	5.99	26.29	50.00	23.71	Average
10	5.711	10.29	0.14	9.87	12.31	32.61	60.00	27.39	QP
11	19.240	10.14	0.26	9.93	16.48	36.81	50.00	13.19	Average
12	19.240	10.14	0.26	9.93	22.55	42.88	60.00	17.12	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
2. If the average limit is met when useing a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

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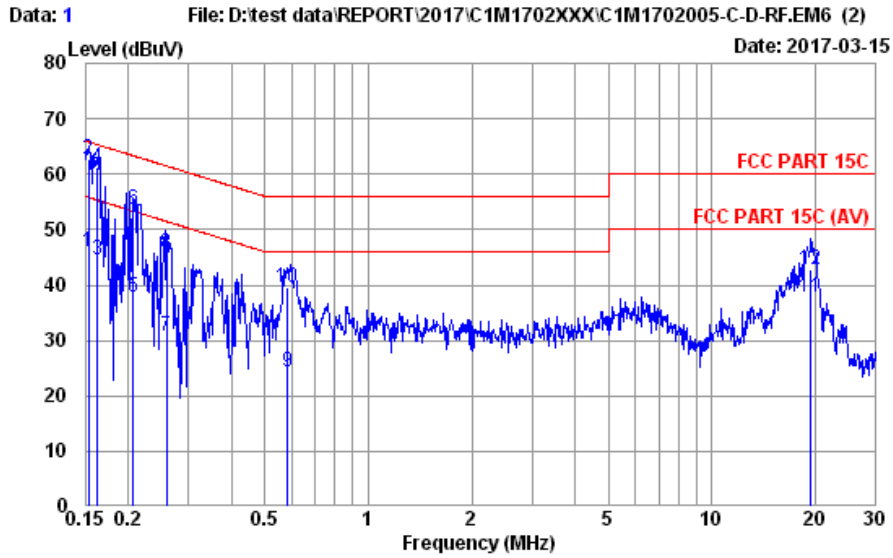
Test Date	2017/03/15	Temp./Hum.	23℃/52%
Test Voltage	AC 120V, 60Hz (with Docking via AC Adapter)		



Site no. : No.8 Shielded Room Data no. : 1
Condition : ENV4200 358/003 LISN Phase : LINE
Limit : FCC PART 15C
Env. / Ins. : 23°C / 52% ESR3 (1774) Engineer : Jemy
EUT : **mPAD-7-CHT4-I**
Power Rating : 120Vac/60Hz
Test Mode : Operating

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.154	10.22	0.03	9.86	25.94	46.05	55.80	9.75	Average
2	0.154	10.22	0.03	9.86	42.48	62.59	65.80	3.21	QP
3	0.162	10.23	0.03	9.86	24.43	44.55	55.34	10.79	Average
4	0.162	10.23	0.03	9.86	41.18	61.30	65.34	4.04	QP
5	0.207	10.27	0.03	9.86	17.54	37.70	53.32	15.62	Average
6	0.207	10.27	0.03	9.86	33.52	53.68	63.32	9.64	QP
7	0.258	10.27	0.03	9.86	10.75	30.91	51.49	20.58	Average
8	0.258	10.27	0.03	9.86	25.64	45.80	61.49	15.69	QP
9	0.583	10.24	0.05	9.86	4.28	24.43	46.00	21.57	Average
10	0.583	10.24	0.05	9.86	19.50	39.65	56.00	16.35	QP
11	19.410	10.09	0.27	9.93	17.45	37.74	50.00	12.26	Average
12	19.410	10.09	0.27	9.93	22.41	42.70	60.00	17.30	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
2. If the average limit is met when useing a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

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A.2 RADIATED EMISSION (IN-BAND)

Test Date	2017/03/10	Temp./Hum.	24℃/55%
Test Voltage	AC 120V, 60Hz (with Docking via AC Adapter)		

Antenna at 0 Degree

Test Frequency (MHz)	Test Result (dBμV/m at 3m)	Limits (dBμV/m at 3m)	Margin (dB)	Detector
13.560	37.80	123.99	86.19	Peak

Antenna at 90 Degree

Test Frequency (MHz)	Test Result (dBμV/m at 3m)	Limits (dBμV/m at 3m)	Margin (dB)	Detector
13.560	36.70	123.99	87.29	Peak

Note: 1. All emissions are lower than the ambient level cannot be measured.
2. The Peak value has been compliance with Q.P. limit, thus measurement with Q.P. is not needed.

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A.3 RADIATED EMISSION (OUT-BAND)

Test Date	2017/03/10	Temp./Hum.	24℃/55%
Test Voltage	AC 120V, 60Hz (with Docking via AC Adapter)		

A.3.1 Emissions within Restricted Frequency Bands

A.3.1.1 Frequency 9kHz~30MHz

Antenna at 0 Degree

Test Frequency (MHz)	Test Result (dBμV/m at 3m)	Limits (dBμV/m at 3m)	Margin (dB)	Detector
27.120	---Note	69.54	---	Peak

Antenna at 90 Degree

Test Frequency (MHz)	Test Result (dBμV/m at 3m)	Limits (dBμV/m at 3m)	Margin (dB)	Detector
27.120	---Note	69.54	---	Peak

Note: 1. All emissions are lower than the ambient level cannot be measured.
2. The Peak value has been compliance with Q.P. limit, thus measurement with Q.P. is not needed.

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A.3.1.2 Frequency 30MHz ~ 1000MHz

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
117.30	12.90	2.47	9.43	24.80	43.50	18.70	Peak
155.13	11.12	2.89	14.94	28.95	43.50	14.55	Peak
230.79	11.57	3.64	25.40	40.61	46.00	5.39	Peak
287.05	13.52	4.18	11.58	29.28	46.00	16.72	Peak
353.01	15.00	5.01	19.58	39.59	46.00	6.41	Peak
521.79	17.43	6.50	3.53	27.46	46.00	18.54	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
46.49	11.44	1.51	17.77	30.72	40.00	9.28	Peak
119.24	13.01	2.50	10.72	26.23	43.50	17.27	Peak
230.79	11.57	3.64	19.06	34.27	46.00	11.73	Peak
295.78	13.70	4.27	12.42	30.39	46.00	15.61	Peak
366.59	15.29	5.18	6.69	27.16	46.00	18.84	Peak
612.97	18.42	6.80	5.90	31.12	46.00	14.88	Peak

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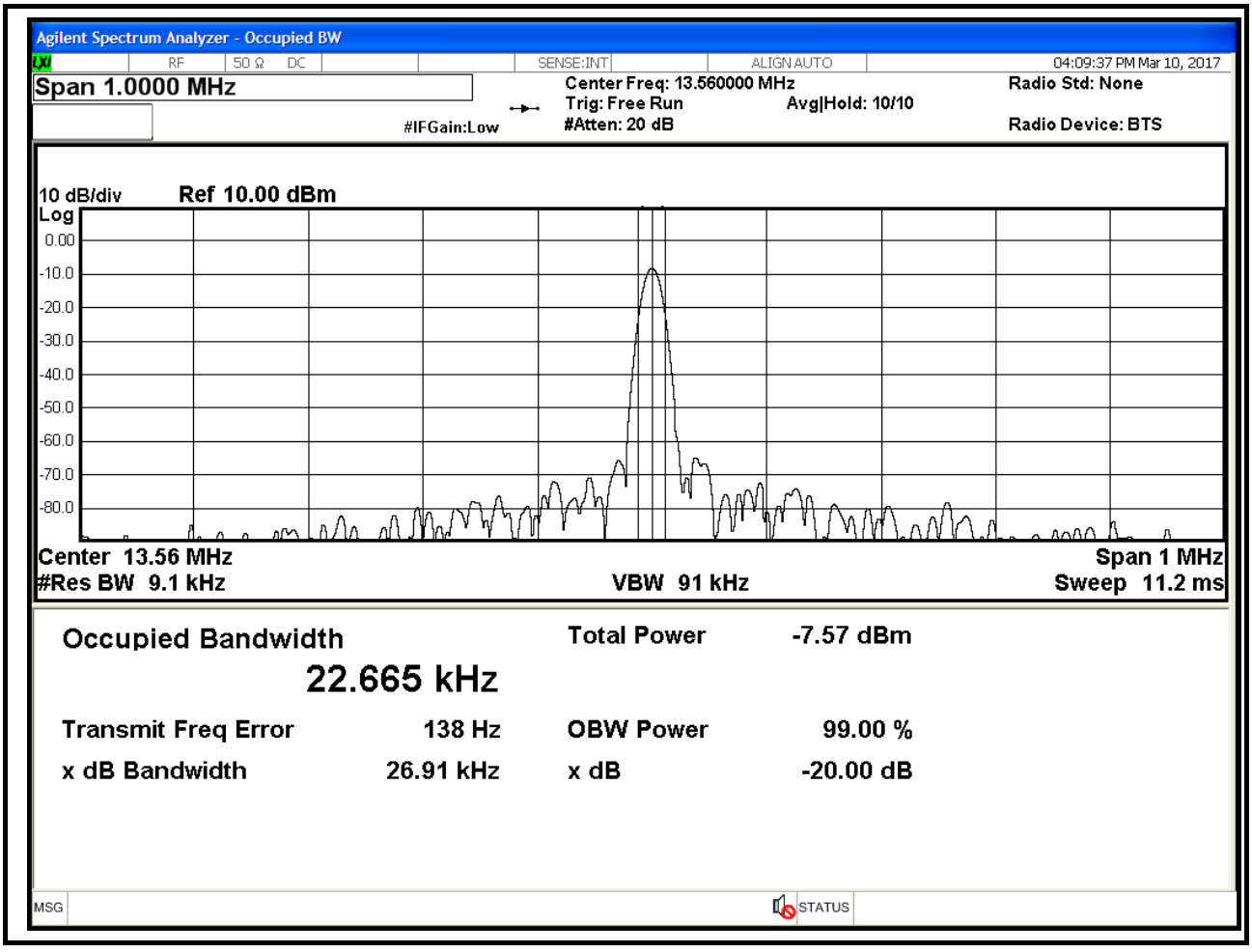
A.4 20dB BANDWIDTH

Test Date	2017/03/10	Temp./Hum.	24℃/55%
Cable Loss	N/A	Test Voltage	AC 120V, 60Hz (with Docking via AC Adapter)

A.4.1.1 20dB Bandwidth Result

Centre Frequency (MHz)	20 dB Bandwidth (kHz)
13.56	26.91

A.4.1.2 Measurement Plots



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A.5 FREQUENCY STABILITY

Test Date	2017/03/13	Temp./Hum.	23℃/55%
Cable Loss	---	Test Voltage	AC 120V, 60Hz (with Docking via AC Adapter)

Mode: 2 Minute					
Temperature(℃)	-20	-10	0	10	20
Voltage	DC 3.7V	DC 3.7V	DC 3.7V	DC 3.7V	DC 4.225V
Frequency(MHz)	13.55948	13.55970	13.55983	13.55996	13.56034
Error (%)	-0.00383	-0.00221	-0.00125	-0.00029	0.00251
Temperature(℃)	20	30	40	50	20
Voltage	DC 3.145V	DC 3.7V	DC 3.7V	DC 3.7V	DC 3.7V
Frequency(MHz)	13.55987	13.56053	13.56069	13.56088	13.56015
Error (%)	-0.00096	0.00391	0.00509	0.00649	0.00111

Mode: 5 Minute					
Temperature(℃)	-20	-10	0	10	20
Voltage	DC 3.7V	DC 3.7V	DC 3.7V	DC 3.7V	DC 4.225V
Frequency(MHz)	13.55926	13.55937	13.55952	13.55977	13.56003
Error (%)	-0.00546	-0.00465	-0.00354	-0.00170	0.00022
Temperature(℃)	20	30	40	50	20
Voltage	DC 3.145V	DC 3.7V	DC 3.7V	DC 3.7V	DC 3.7V
Frequency(MHz)	13.55949	13.56011	13.56023	13.56028	13.55990
Error (%)	-0.00376	0.00081	0.00170	0.00206	-0.00074

Mode: 10 Minute					
Temperature(℃)	-20	-10	0	10	20
Voltage	DC 3.7V	DC 3.7V	DC 3.7V	DC 3.7V	DC 4.225V
Frequency(MHz)	13.55916	13.55924	13.55937	13.55959	13.55986
Error (%)	-0.00619	-0.00560	-0.00465	-0.00302	-0.00103
Temperature(℃)	20	30	40	50	20
Voltage	DC 3.145V	DC 3.7V	DC 3.7V	DC 3.7V	DC 3.7V
Frequency(MHz)	13.55946	13.55991	13.56009	13.56019	13.55973
Error (%)	-0.00398	-0.00066	0.00066	0.00140	-0.00199

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Mode: 0 Minute					
Temperature(℃)	-20	-10	0	10	20
Voltage	DC 3.7V	DC 3.7V	DC 3.7V	DC 3.7V	DC 4.225V
Frequency(MHz)	13.55969	13.55982	13.55993	13.56005	13.56024
Error (%)	-0.00229	0.00133	-0.00052	0.00037	0.00177
Temperature(℃)	20	30	40	50	20
Voltage	DC 3.145V	DC 3.7V	DC 3.7V	DC 3.7V	DC 3.7V
Frequency(MHz)	13.56008	13.56029	13.56038	13.56042	13.56017
Error (%)	0.00059	0.00214	0.00280	0.00310	0.00125

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APPDNDIX B

TEST PHOTOGRAPHS

(Model: mPAD2-7-CHT4-I)