

Test Report No. 7191059978-EEC13/11
dated 30 May 2013

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FORMAL REPORT ON TESTING IN ACCORDANCE WITH
47 CFR FCC Parts 15B & C : 2012
OF AN
Elo® Tablet
[Model : ETT10A1]
[FCC ID : RBWETT10A1]

TEST FACILITY TÜV SÜD PSB Pte Ltd,
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FCC REG. NO. 99142 (3m and 10m Semi-Anechoic Chamber, Science Park)

IND. CANADA REG. NO. 2932I-1 (3m and 10m Semi-Anechoic Chamber, Science Park)

PREPARED FOR Elo Touch Solutions, Inc.
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QUOTATION NUMBER 219170143 & 219170141 & 219170140

JOB NUMBER 7191059978 & 7191059991 & 7191059989

TEST PERIOD 21 May 2013 – 22 May 2013

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LA-2007-0386-C
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The results reported herein have been performed in accordance with the laboratory's terms of accreditation under the Singapore Accreditation Council - Singapore Laboratory Accreditation Scheme. Tests/Calibrations marked "Not SAC-SINGLAS Accredited" in this Report are not included in the SAC-SINGLAS Accreditation Schedule for our laboratory.

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TEST SUMMARY

The product was tested in accordance with the customer's specifications.

Test Results Summary

Test Standard	Description	Pass / Fail
47 CFR FCC Part 15: 2012		
15.107(a), 15.207	Conducted Emissions	Pass
15.109(a), 15.205, 15.209, 15.225(d)	Radiated Emissions (Spurious Emissions inclusive Restricted Bands Requirement)	Pass
15.225(a)	Radiated Emissions (Fundamental)	Pass
15.225(b)	Radiated Emissions (Fundamental)	Not Applicable *See Note 2
15.225(c)	Radiated Emissions (Fundamental)	Not Applicable *See Note 2
15.225(e)	Frequency Stability Versus Temperature	Pass
15.225(e)	Frequency Stability Versus Input Voltage	Pass

Notes

1. The EUT was configured to operate in the test mode at 13.56MHz.
2. The EUT's carrier is in 13.553 -13.567MHz band.
3. The EUT is a Class B device when in non-transmitting state and meets the 47 CFR FCC Part15B Class B requirements.
4. All test measurement procedures are according to ANSI C63.4: 2003.
5. The maximum measured RF power (NFC) of the Equipment Under Test is -36.6dBm.
6. The EUT used a certified WLAN (WiFi) / Bluetooth module from AzureWave (AW-NB114H, M/N: RTL 8723AE, FCC ID: TX2-RTL8723AE, IC: 6317A-RTL8723AE) and this module is integrated in the EUT without any modification.

Modifications

No modifications were made.



PRODUCT DESCRIPTION

Description	: The Equipment Under Test (EUT) is an Elo® Tablet .
Applicant	: Elo Touch Solutions , Inc 1033 McCarthy Blvd, Milpitas, CA 95035-7920 www.elotouch.com
Manufacturer	: Elo Touch Solutions , Inc 1033 McCarthy Blvd, Milpitas, CA 95035-7920 www.elotouch.com
Factor (ies)	: GES Manufacturing Services (M) Sdn Bhd PLO 34 Fasa 2, Kawasan Perindustrian Senai, 81400 Senai, Johor, Malaysia
Model Number	: ETT10A1
FCC ID	: RBWETT10A1
Serial Number	: TA1316A00047
Microprocessor	: Refer to next page for details
Operating Frequency	: Refer to next page for details
Clock / Oscillator Frequency	: Refer to next page for details
Port / Connectors	: Refer to manufacturer's user manual / operating manual.
Rated Input Power	: 12Vdc 3A
Accessories	: APD Power Adapter Input 100V-240V 60Hz/50Hz Output 12Vdc 3A

PRODUCT DESCRIPTION

CLOCK & OPERATING OF THE EUT, TABLET & DOCK.		
Frequency	Description of Clock	Location
EUT Terminal		
1.6GHz	CPU speed, Intel Atom, Cedar View, BGA559	U16
800MHz, 533MHz	DDR3 SODIMM	SODIMM1
14.318MHz (ref)	Clock generator-9VRS4338B	U15
25MHz		
33MHz (PCI)		
48MHz (USB)		
72MHz	LVDS data clock	U16/F28
10MHz / 100MHz	LAN-RJ45-Internet controller-Realtek-RTL8111F	U35
8MHz	Embedded Controller-MKL25Z128VLK4	U9, Y1
13.56MHz	NFC-module-PR5331C3HN	U603
2.4GHz-2.483GHz (WLAN)	WLAN-AzureWave-AW-NB114H, M/N: RTL 8723AE FCC ID: TX2-RTL8723AE	WLAN/BT MODULE
2.4MHz-2.48MHz (Bluetooth)		
24MHz	Crystal clock, for USD HUB-USB2514B-U5	Y2
14.318MHz	Crystal clock, for Clock generator-U15	Y3
27MHz	Crystal clock, for CPU, Cedar View, U16, VGA-Multimedia	Y4
32.768MHz	Crystal clock, for Chipset-TIGERPOINT-U25d	Y5
25MHz	Crystal clock, for Internet controller-Realtek-RTL8111F,U35	Y6



SUPPORTING EQUIPMENT DESCRIPTION

The EUT was tested as a stand-alone unit without any supporting equipment.





EUT OPERATING CONDITIONS

47 CFR FCC Part 15

- 1. Conducted Emissions**
- 2. Radiated Emissions (Spurious Emissions inclusive Restricted Bands Requirement)**
- 3. Radiated Emissions (Fundamental)**
- 4. Frequency Stability Versus Temperature**
- 5. Frequency Stability Versus Input Voltage**
- 6. Duty Cycle Factor Computation**

The EUT was exercised by operating in maximum continuous transmission in test mode, i.e transmitting at 13.56MHz (NFC) continuously.



CONDUCTED EMISSION TEST

47 CFR FCC Parts 15.107(a) and 15.207 Conducted Emission Limits

Frequency Range (MHz)	Limit Values (dBµV)	
	Quasi-peak (Q-P)	Average (AV)
0.15 - 0.5	66 – 56 *	56 – 46 *
0.5 - 5.0	56	46
5.0 - 30.0	60	50

* Decreasing linearly with the logarithm of the frequency

47 CFR FCC Parts 15.107(a) and 15.207 Conducted Emission Test Instrumentation

Instrument	Model	S/No	Cal Due Date
Schaffner EMI Receiver	SMR4503	040	20 Nov 2013
Agilent EMC Analyzer-SA7	E7403A	US41160167	28 May 2014
Schaffner LISN –LISN10 (EUT)	NNB42	04/10055	31 Oct 2013
EMCO LISN (for supporting) – LISN6	3825/2	9309-2127	31 Oct 2013





CONDUCTED EMISSION TEST

47 CFR FCC Parts 15.107(a) and 15.207 Conducted Emission Test Setup

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table.
2. The power supply for the EUT was fed through a 50 Ω /50 μ H EUT LISN, connected to filtered mains.
3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.
4. All other supporting equipment were powered separately from another LISN.

47 CFR FCC Parts 15.107(a) and 15.207 Conducted Emission Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. A scan was made on the NEUTRAL line over the required frequency range using an EMI test receiver.
3. High peaks, relative to the limit line, were then selected.
4. The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 9kHz. Both Quasi-peak and Average measurements were made.
5. Steps 2 to 4 were then repeated for the LIVE line.

Sample Calculation Example

At 20 MHz

Q-P limit = 60.0 dB μ V

Transducer factor of LISN, pulse limiter & cable loss at 20 MHz = 11.2 dB

Q-P reading obtained directly from EMI Receiver = 40.0 dB μ V
(Calibrated for system losses)

Therefore, Q-P margin = 60.0 - 40.0 = 20.0

i.e. 20.0 dB below Q-P limit

CONDUCTED EMISSION TEST



Conducted Emissions Test Setup (Front View)



Conducted Emissions Test Setup (Rear View)

CONDUCTED EMISSION TEST

47 CFR FCC Parts 15.107(a) and 15.207 Conducted Emission Results

Operating Mode	Transmit	Temperature	23°C
Test Input Power	110V 60Hz	Relative Humidity	57%
Line Under Test	AC Mains	Atmospheric Pressure	1030mbar
		Tested By	Stanley Siah

Frequency (MHz)	Q-P Value (dBµV)	Q-P Limit (dBµV)	Q-P Margin (dB)	AV Value (dBµV)	AV Limit (dBµV)	AV Margin (dB)	Line
0.1500	49.6	66.0	16.4	19.8	56.0	36.2	Live
0.6643	28.8	56.0	27.2	21.4	46.0	24.6	Neutral
1.0440	28.1	56.0	27.9	19.1	46.0	26.9	Live
2.9055	40.3	56.0	15.7	31.9	46.0	14.1	Neutral
4.8648	25.5	56.0	30.5	14.3	46.0	31.7	Neutral
15.4288	45.8	60.0	14.2	37.0	50.0	13.0	Live

Notes

1. All possible modes of operation were investigated from 150kHz to 30MHz. Only the worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A "positive" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency. Conversely, a "negative" margin indicates a FAIL.
3. EMI receiver Resolution Bandwidth (RBW) and Video Bandwidth (VBW) settings:
9kHz - 30MHz
RBW: 9kHz VBW: 30kHz
4. Conducted Emissions Measurement Uncertainty
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 9kHz – 30MHz is ± 2.2 dB.

RADIATED EMISSION TEST

47 CFR FCC Part 15.205 Restricted Bands

MHz			MHz			MHz			GHz		
0.090	-	0.110	16.42	-	16.423	399.9	-	410	4.5	-	5.15
0.495	-	0.505	16.69475	-	16.69525	608	-	614	5.35	-	5.46
2.1735	-	2.1905	16.80425	-	16.80475	960	-	1240	7.25	-	7.75
4.125	-	4.128	25.5	-	25.67	1300	-	1427	8.025	-	8.5
4.17725	-	4.17775	37.5	-	38.25	1435	-	1626.5	9.0	-	9.2
4.20725	-	4.20775	73	-	74.6	1645.5	-	1646.5	9.3	-	9.5
6.215	-	6.218	74.8	-	75.2	1660	-	1710	10.6	-	12.7
6.26775	-	6.26825	108	-	121.94	1718.8	-	1722.2	13.25	-	13.4
6.31175	-	6.31225	123	-	138	2200	-	2300	14.47	-	14.5
8.291	-	8.294	149.9	-	150.05	2310	-	2390	15.35	-	16.2
8.362	-	8.366	156.52475	-	156.52525	2483.5	-	2500	17.7	-	21.4
8.37625	-	8.38675	156.7	-	156.9	2690	-	2900	22.01	-	23.12
8.41425	-	8.41475	162.0125	-	167.17	3260	-	3267	23.6	-	24.0
12.29	-	12.293	167.72	-	173.2	3332	-	3339	31.2	-	31.8
12.51975	-	12.52025	240	-	285	3345.8	-	3358	36.43	-	36.5
12.57675	-	12.57725	322	-	335.4	3600	-	4400	Above 38.6		
13.36	-	13.41									

47 CFR FCC Parts 15.109(a), 15.209 and 15.225(d) Radiated Emission Limits

Frequency Range (MHz)	Quasi-Peak Limit Values (dBμV/m)
0.009 - 0.490	20 log [2400 / F (kHz)] @ 300m
0.490 - 1.705	20 log [24000 / F (kHz)] @ 30m
1.705 - 30.0	30 @ 30m
30 - 88	40.0 @ 3m
88 - 216	43.5 @ 3m
216 - 960	46.0 @ 3m
Above 960	54.0* @ 3m

* Above 1GHz, average detector was used. A peak limit of 20dB above the average limit does apply.

47 CFR FCC Parts 15.109(a), 15.209 and 15.225(d) Radiated Emission Test Instrumentation

Instrument	Model	S/No	Cal Due Date
R&S Test Receiver – ESI1	ESI40	100010	05 Jun 2014
EMCO Loop Antenna	6502	9108-2673	29 Jul 2013
Teseq Preamplifier (9kHz-1GHz)	LNA6901	72267	22 Jun 2013
Schaffner Bilog Antenna(30MHz-2GHz) – BL4	CBL6112B	2593	19 Oct 2013



RADIATED EMISSION TEST

47 CFR FCC Parts 15.109(a), 15.209 and 15.225(d) Radiated Emission Test Setup

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m X 1.0m X 0.8m high, non-metallic table.
2. The filtered power supply for the EUT and supporting equipment were tapped from the appropriate power sockets located on the turntable.
3. The relevant broadband antenna was set at the required test distance away from the EUT and supporting equipment boundary.

47 CFR FCC Parts 15.109(a), 15.209 and 5.225(d) Radiated Emission Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. A prescan was carried out to pick the worst emission frequencies from the EUT. For EUT which is a portable device, the prescan was carried out by rotating the EUT through three orthogonal axes to determine which altitude and equipment arrangement produces such emissions.
3. The test was carried out at the selected frequency points obtained from the prescan in step 2. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
 - a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
 - b. The EUT was then rotated to the direction that gave the maximum emission.
 - c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
4. A Quasi-peak measurement was made for that frequency point if it was less than or equal to 1GHz. For frequency point that above 1GHz, both Peak and Average measurements were carried out.
5. Steps 3 and 4 were repeated for the next frequency point, until all selected frequency points were measured.
6. The frequency range covered was from the lowest radio frequency signal generated from the EUT, without going below 9kHz to 10th harmonics of the EUT fundamental frequency, using the loop antenna for frequency below 30MHz, Bi-log antenna for frequencies from 30MHz up to 1GHz, and the Horn antenna above 1GHz.

Sample Calculation Example

At 300 MHz

Q-P limit = 46.0 dB μ V/m

Log-periodic antenna factor & cable loss at 300 MHz = 18.5 dB

Q-P reading obtained directly from EMI Receiver = 40.0 dB μ V/m
(Calibrated level including antenna factors & cable losses)

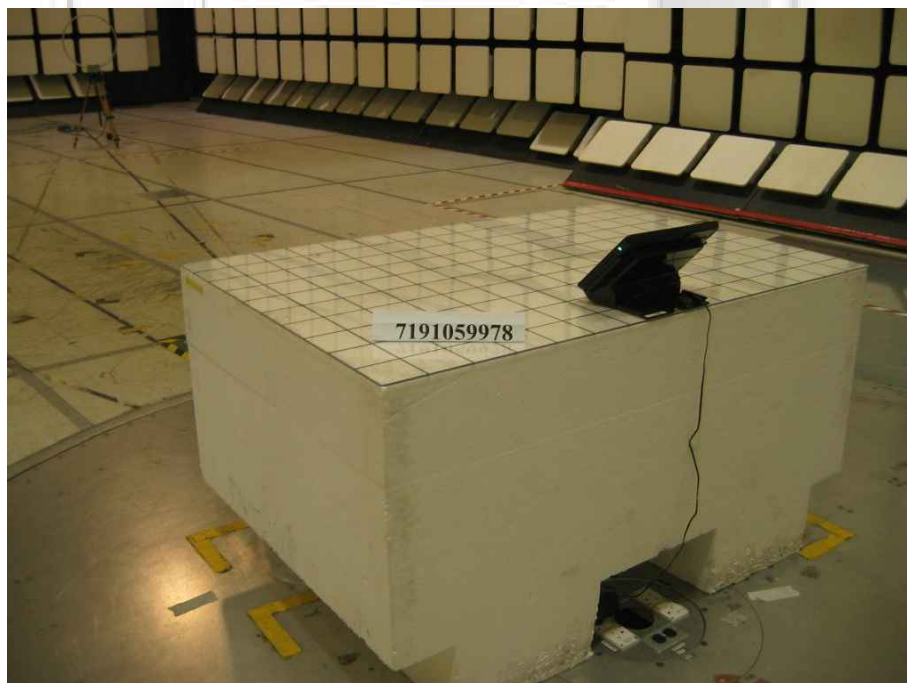
Therefore, Q-P margin = 46.0 - 40.0 = 6.0

i.e. 6.0 dB below Q-P limit

RADIATED EMISSION TEST



Radiated Emissions Test Setup (Front View)



Radiated Emissions Test Setup (Rear View)



RADIATED EMISSION TEST

47 CFR FCC Parts 15.109(a), 15.205, 15.209 and 15.225(d) Radiated Emission Results

Operating Mode	Transmit	Temperature	23°C
Test Input Power	110V 60Hz	Relative Humidity	55%
Test Distance	10m *See Note 2	Atmospheric Pressure	1030mbar
Modulation	Felica	Tested By	Chang Wai Kit

Spurious Emissions ranging from 9kHz - 30MHz

Frequency (MHz)	Q-P Value (dBμV/m)	Q-P Limit (dBμV/m) *See Note 4	Q-P Margin (dB)	Height (cm)	Azimuth (Degrees)
1.5930	38.9	62.7	23.8	100	293
1.9570	37.9	49.1	11.2	100	304
6.7520	27.2	49.1	21.9	100	299
7.9050	25.6	49.1	23.5	100	106
10.6360	23.8	49.1	25.3	100	222
11.5460	23.4	49.1	25.7	100	315

Operating Mode	Transmit	Temperature	23°C
Test Input Power	110V 60Hz	Relative Humidity	55%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation	Felica	Tested By	Chang Wai Kit

Spurious Emissions ranging from 30MHz – 1GHz

Frequency (MHz)	Q-P Value (dBμV/m)	Q-P Limit (dBμV/m)	Q-P Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)
36.1360	21.6	40.0	18.4	100	103	V
52.9920	29.3	40.0	10.7	100	254	V
71.9830	23.6	40.0	16.4	158	30	H
135.5920	30.4	43.5	13.1	100	211	V
867.7800	36.4	46.0	9.6	100	182	H
875.0210	36.0	46.0	10.0	100	119	H



RADIATED EMISSION TEST

47 CFR FCC Parts 15.109(a), 15.205, 15.209 and 15.225(d) Radiated Emission Results

Operating Mode	Transmit	Temperature	23°C
Test Input Power	110V 60Hz	Relative Humidity	55%
Test Distance	10m *See Note 2	Atmospheric Pressure	1030mbar
Modulation	Mifare	Tested By	Chang Wai Kit

Spurious Emissions ranging from 9kHz - 30MHz

Frequency (MHz)	Q-P Value (dBμV/m)	Q-P Limit (dBμV/m) *See Note 4	Q-P Margin (dB)	Height (cm)	Azimuth (Degrees)
4.6880	30.5	49.1	18.6	100	245
6.9340	27.9	49.1	21.2	100	146
8.6330	25.1	49.1	24.0	100	222
14.2170	26.6	49.1	22.5	100	215
16.2800	22.2	49.1	26.9	100	199
18.7690	22.9	49.1	26.2	100	281

Operating Mode	Transmit	Temperature	23°C
Test Input Power	110V 60Hz	Relative Humidity	55%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation	Mifare	Tested By	Chang Wai Kit

Spurious Emissions ranging from 30MHz – 1GHz

Frequency (MHz)	Q-P Value (dBμV/m)	Q-P Limit (dBμV/m)	Q-P Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)
52.2910	30.1	40.0	9.9	100	71	V
72.1630	25.8	40.0	14.2	239	248	H
162.7280	32.9	43.5	10.6	100	245	V
786.4480	33.9	46.0	12.1	100	102	H
867.8000	36.4	46.0	9.6	100	54	V
875.0370	36.5	46.0	9.5	100	120	H



RADIATED EMISSION TEST

Notes

1. All possible modes of operation were investigated. Only the worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A closer test distance of 10m was used for the measurement instead of 30m as the fundamental (carrier) electric field strength of the EUT at the 10m distance shows compliance to the limit of 30m test distance.
3. Quasi-peak measurement was used for frequency measurement up to 1GHz. Average and peak measurements were used for emissions above 1GHz. The average measurement was done by measuring the absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
4. The limit has been extrapolated to 10m distance.
5. A "positive" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency. Conversely, a "negative" margin indicates a FAIL.
6. EMI receiver Resolution Bandwidth (RBW) and Video Bandwidth (VBW) settings:
9kHz - 150kHz
RBW: 100Hz VBW: 300Hz
150kHz - 30MHz
RBW: 10kHz VBW: 30kHz
30MHz - 1GHz
RBW: 120kHz VBW: 1MHz
>1GHz
RBW: 1MHz VBW: 1MHz
7. The upper frequency of radiated emission investigations was according to requirements stated in Section 15.33(a) for intentional radiators & Section 15.33(b) for unintentional radiators.
8. Radiated Emissions Measurement Uncertainty
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 30MHz – 25GHz is $\pm 4.0\text{dB}$.



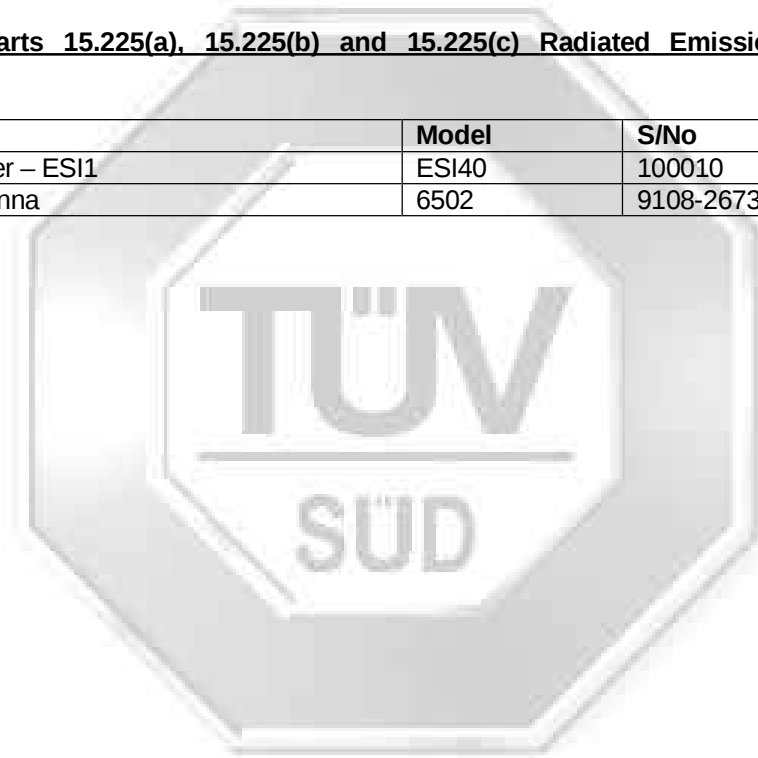
RADIATED EMISSION (FUNDAMENTAL) TEST

47 CFR FCC Parts 15.225(a), 15.225(b) and 15.225(c) Radiated Emission (Fundamental) Limits

Fundamental Frequency (MHz)	Field Strength of Fundamental Limit Values @ 30m (dB μ V/m)
13.553 - 13.567	84.0
13.410 -13.553	50.5
13.567 -13.710	50.5
13.110 -13.410	40.5
13.710 -14.010	40.5

47 CFR FCC Parts 15.225(a), 15.225(b) and 15.225(c) Radiated Emission (Fundamental) Test Instrumentation

Instrument	Model	S/No	Cal Due Date
R&S Test Receiver – ESI1	ESI40	100010	05 Jun 2014
EMCO Loop Antenna	6502	9108-2673	29 Jul 2013





RADIATED EMISSION (FUNDAMENTAL) TEST

47 CFR FCC Parts 15.225(a), 15.225(b) and 15.225(c) Radiated Emission (Fundamental) Test Setup

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m X 1.0m X 0.8m high, non-metallic table.
2. The filtered power supply for the EUT and supporting equipment were tapped from the appropriate power sockets located on the turntable.
3. The relevant broadband antenna was set at the required test distance away from the EUT and supporting equipment boundary.

47 CFR FCC Parts 15.225(a), 15.225(b) and 15.225(c) Radiated Emission (Fundamental) Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. A prescan was carried out to pick the fundamental frequency from the EUT. For EUT which is a portable device, the prescan was carried out by rotating the EUT through three orthogonal axes to determine which altitude and equipment arrangement produces such emissions.
3. The test was carried out at the selected frequency points obtained from the prescan in step 2. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
 - a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
 - b. The EUT was then rotated to the direction that gave the maximum emission.
 - c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
4. A Quasi-peak measurement was made for that frequency point if it was less than or equal to 1GHz. For frequency point that above 1GHz, both Peak and Average measurements were carried out.
5. Steps 3 and 4 were repeated for the next frequency point, until all selected frequency points were measured.

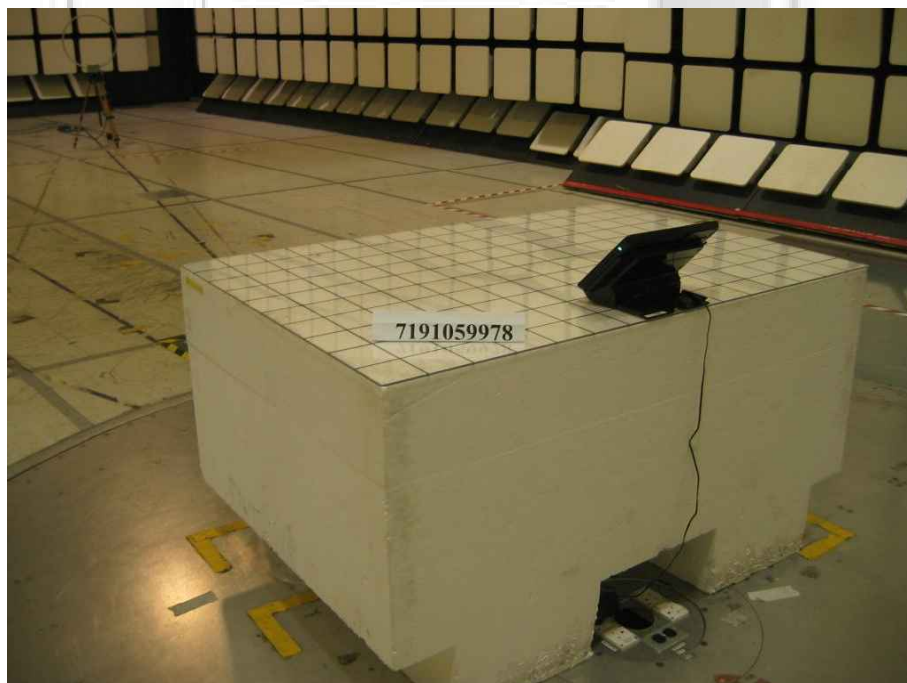
Sample Calculation Example

At 300 MHz	Q-P limit = 46.0 dB μ V/m
Log-periodic antenna factor & cable loss at 300 MHz = 18.5 dB	
Q-P reading obtained directly from EMI Receiver = 40.0 dB μ V/m (Calibrated level including antenna factors & cable losses)	
Therefore, Q-P margin = 46.0 - 40.0 = 6.0	i.e. 6.0 dB below Q-P limit

RADIATED EMISSION (FUNDAMENTAL) TEST



Radiated Emissions Test Setup (Front View)



Radiated Emissions Test Setup (Rear View)



RADIATED EMISSION (FUNDAMENTAL) TEST

47 CFR FCC Part 15.225(a / b / c) Radiated Emission (Fundamental) Results

Operating Mode	Transmit	Temperature	23°C
Test Input Power	110V 60Hz	Relative Humidity	60%
Test Distance	10m ^{*see Note 2}	Atmospheric Pressure	1030mbar
		Tested By	Chang Wai Kit

Frequency (MHz)	Q-P Value (dBμV/m)	Q-P Limit (dBμV/m)	Q-P Margin (dB)	Height (cm)	Azimuth (Degrees)	Modulation
13.5490	46.4	84.0	37.6	100	214	Mifare
13.5490	48.2	84.0	35.8	100	198	Felica

Notes

- All possible modes of operation were investigated. Only the worst case emissions measured, using the average and peak detectors, are reported. All other emissions were relatively insignificant.
- A closer test distance of 10m was used for the measurement instead of 30m as the fundamental (carrier) electric field strength of the EUT at the 10m distance shows compliance to the limit of 30m test distance.
- A "positive" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency. Conversely, a "negative" margin indicates a FAIL.
- EMI receiver Resolution Bandwidth (RBW) and Video Bandwidth (VBW) settings:
150kHz - 30MHz
RBW: 10kHz VBW: 30kHz
30MHz - 1GHz
RBW: 120kHz VBW: 1MHz
>1GHz
RBW: 1MHz VBW: 1MHz
- Radiated Emissions (Fundamental) Measurement Uncertainty
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 30MHz – 25GHz is ±4.0dB.

FREQUENCY STABILITY VERSUS TEMPERATURE TEST

47 CFR FCC Part 15.225(e) Frequency Stability Versus Temperature Limits

The EUT shows compliance to the requirements of this section, which states that the frequency tolerance of the carrier frequency shall be $\pm 0.01\%$ for a temperature variation of -20°C to $+50^{\circ}\text{C}$ at normal supply voltage.

47 CFR FCC Part 15.225(e) Frequency Stability Versus Temperature Test Instrumentation

Instrument	Model	S/No	Cal Due Date
Agilent Universal Counter	53132A	3736A0628	25 Mar 2014
Voltac Variable Voltage Transformer	SB-10	6239	Output Monitor
Cincinnati Sub-Zero (CSZ4)	ZH-8-1-1-H/AC	ZF9722653	28 Jan 2014

47 CFR FCC Part 15.225(e) Frequency Stability Versus Temperature Test Setup

1. The EUT and supporting equipment were set up as shown in the setup photo. The EUT was placed in an environmental temperature chamber with a nominal supply voltage. For the battery operated EUT, a new battery was used.
2. The RF antenna connector of the EUT was connected to the frequency counter via a low-loss coaxial cable.

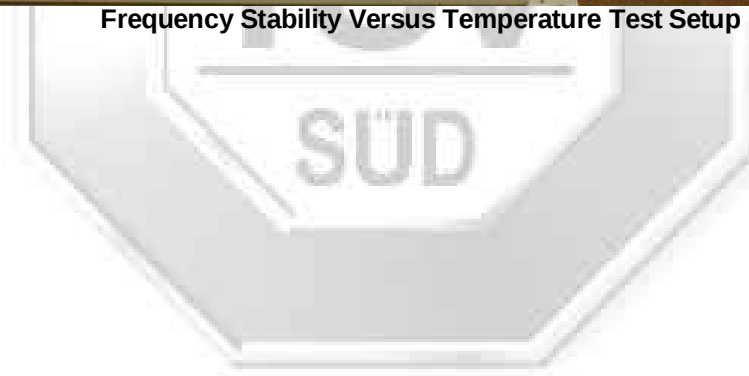
47 CFR FCC Part 15.225(e) Frequency Stability Versus Temperature Test Method

1. The EUT was switched off and the environmental temperature was set to the highest temperature, i.e., $+50^{\circ}\text{C}$.
2. Upon reaching the highest set temperature with 30 minutes of stabilisation period, the EUT was switched on and configured to operate in the test mode with transmitting frequency at 13.56MHz.
3. The EUT's transmitting frequency was then measured at startup, and two, five and ten minutes after startup with the frequency counter to capture the transmitting frequency. For each measurement, the signal capturing was continuous until no further changes were observed. Four measurements were made in total.
4. Repeat steps 1 to 3 with the temperature set to the lowest temperature, i.e., -20°C .

FREQUENCY STABILITY VERSUS TEMPERATURE TEST



Frequency Stability Versus Temperature Test Setup





FREQUENCY STABILITY VERSUS TEMPERATURE TEST

47 CFR FCC Part 15.225(e) Frequency Stability Versus Temperature Results

Operating Mode	Transmit	Temperature	50°C
Test Input Power	110V 60Hz	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Kway Soe Hein

Channel Frequency (MHz)	± 0.01% Carrier Tolerance (Hz)	Measured Tolerance (Hz)	Measurement with respects to Startup Time (Mins)
13.5600	±1356.0000	-700.0000	0
13.5600	±1356.0000	-713.0000	2
13.5600	±1356.0000	-720.0000	5
13.5600	±1356.0000	-732.0000	10

Operating Mode	Transmit	Temperature	-20°C
Test Input Power	110V 60Hz	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Kway Soe Hein

Channel Frequency (MHz)	± 0.01% Carrier Tolerance (Hz)	Measured Tolerance (Hz)	Measurement with respects to Startup Time (Mins)
13.5600	±1356.0000	-568.0000	0
13.5600	±1356.0000	-569.0000	2
13.5600	±1356.0000	-570.0000	5
13.5600	±1356.0000	-570.0000	10

FREQUENCY STABILITY VERSUS INPUT VOLTAGE TEST

47 CFR FCC Part 15.225(e) Frequency Stability Versus Input Voltage Limits

The EUT shows compliance to the requirements of this section, which states that the frequency tolerance of the carrier frequency shall be $\pm 0.01\%$ for variation of a primary voltage from 85% to 115% of the rated supply voltage at a temperature of 20°C. For a battery operated equipment, the equipment tests shall be performed using a new battery.

47 CFR FCC Part 15.225(e) Frequency Stability Versus Input Voltage Test Instrumentation

Instrument	Model	S/No	Cal Due Date
Agilent Universal Counter	53132A	3736A0628	25 Mar 2014
Voltac Variable Voltage Transformer	SB-10	6239	Output Monitor
Cincinnati Sub-Zero (CSZ4)	ZH-8-1-1-H/AC	ZF9722653	28 Jan 2014

47 CFR FCC Part 15.225(e) Frequency Stability Versus Input Voltage Test Setup

1. The EUT and supporting equipment were set up as shown in the setup photo. The EUT was placed in an environmental temperature chamber with a nominal supply voltage. For the battery operated EUT, a new battery was used.
2. The RF antenna connector of the EUT was connected to the frequency counter via a low-loss coaxial cable.

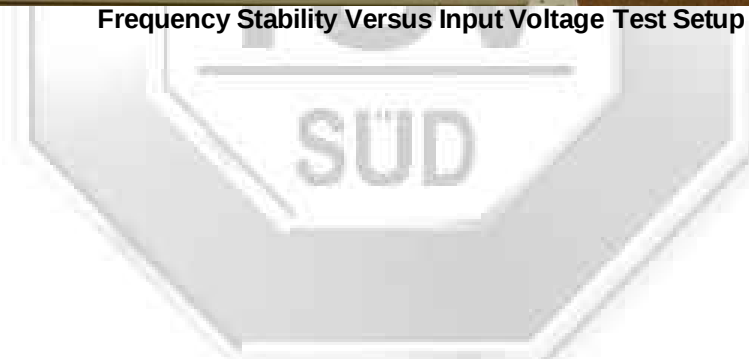
47 CFR FCC Part 15.225(e) Frequency Stability Versus Input Voltage Test Method

1. The EUT was switched off and the environmental temperature was set to 20°C.
2. Upon reaching the set temperature with 30 minutes of stabilisation period, the EUT was switched on and configured to operate in the test mode with transmitting frequency at 13.56MHz.
3. The EUT's transmitting frequency was then measured at startup, and two, five and ten minutes after startup with the frequency counter to capture the transmitting frequency. For each measurement, the signal capturing was continuous until no further changes were observed. Four measurements were made in total.
5. Repeat steps 1 to 3 with the supply voltage set to 85% and 115% of the nominal voltage supply respectively. For the battery operated EUT, this step is not applicable.

FREQUENCY STABILITY VERSUS INPUT VOLTAGE TEST



Frequency Stability Versus Input Voltage Test Setup





FREQUENCY STABILITY VERSUS INPUT VOLTAGE TEST

47 CFR FCC Part 15.225(e) Frequency Stability Versus Input Voltage Results

Operating Mode	Transmit	Temperature	20°C
Test Input Power	110V 60Hz (Nominal Voltage)	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Kyaw Soe Hein

Channel Frequency (MHz)	± 1% Carrier Tolerance (Hz)	Measured Tolerance (Hz)	Measurement with respects to Startup Time (Mins)
13.5600	±1356.0000	-586.0000	0
13.5600	±1356.0000	-592.0000	2
13.5600	±1356.0000	-609.0000	5
13.5600	±1356.0000	-618.0000	10

Operating Mode	Transmit	Temperature	20°C
Test Input Power	93.5V 60Hz (85% of the Nominal voltage)	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Kyaw Soe Hein

Channel Frequency (MHz)	± 1% Carrier Tolerance (Hz)	Measured Tolerance (Hz)	Measurement with respects to Startup Time (Mins)
13.5600	±1356.0000	-619.0000	0
13.5600	±1356.0000	-622.0000	2
13.5600	±1356.0000	-638.0000	5
13.5600	±1356.0000	-646.0000	10

Operating Mode	Transmit	Temperature	20°C
Test Input Power	126.5V 60Hz (115% of the Nominal voltage)	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Kyaw Soe Hein

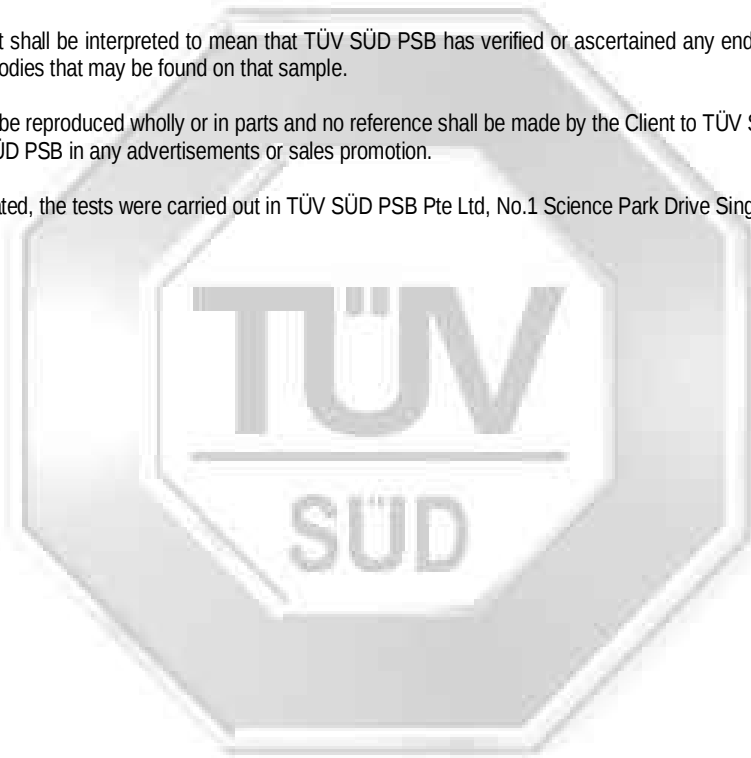
Channel Frequency (MHz)	± 1% Carrier Tolerance (Hz)	Measured Tolerance (Hz)	Measurement with respects to Startup Time (Mins)
13.5600	±1356.0000	-647.0000	0
13.5600	±1356.0000	-649.0000	2
13.5600	±1356.0000	-651.0000	5
13.5600	±1356.0000	-657.0000	10



Please note that this Report is issued under the following terms :

1. This report applies to the sample of the specific product/equipment given at the time of its testing/calibration. The results are not used to indicate or imply that they are applicable to other similar items. In addition, such results must not be used to indicate or imply that TÜV SÜD PSB approves, recommends or endorses the manufacturer, supplier or user of such product/equipment, or that TÜV SÜD PSB in any way "guarantees" the later performance of the product/equipment. Unless otherwise stated in this report, no tests were conducted to determine long term effects of using the specific product/equipment.
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5. Unless otherwise stated, the tests were carried out in TÜV SÜD PSB Pte Ltd, No.1 Science Park Drive Singapore 118221.

July 2011



ANNEX A EUT PHOTOGRAPHS / DIAGRAMS



ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS – Elo® Tablet



Front View



Rear View

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS – Elo® Tablet



Front View



Rear View

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS – POWER ADAPTER



Front View



Rear View

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS – Elo® Tablet



Internal View 1

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

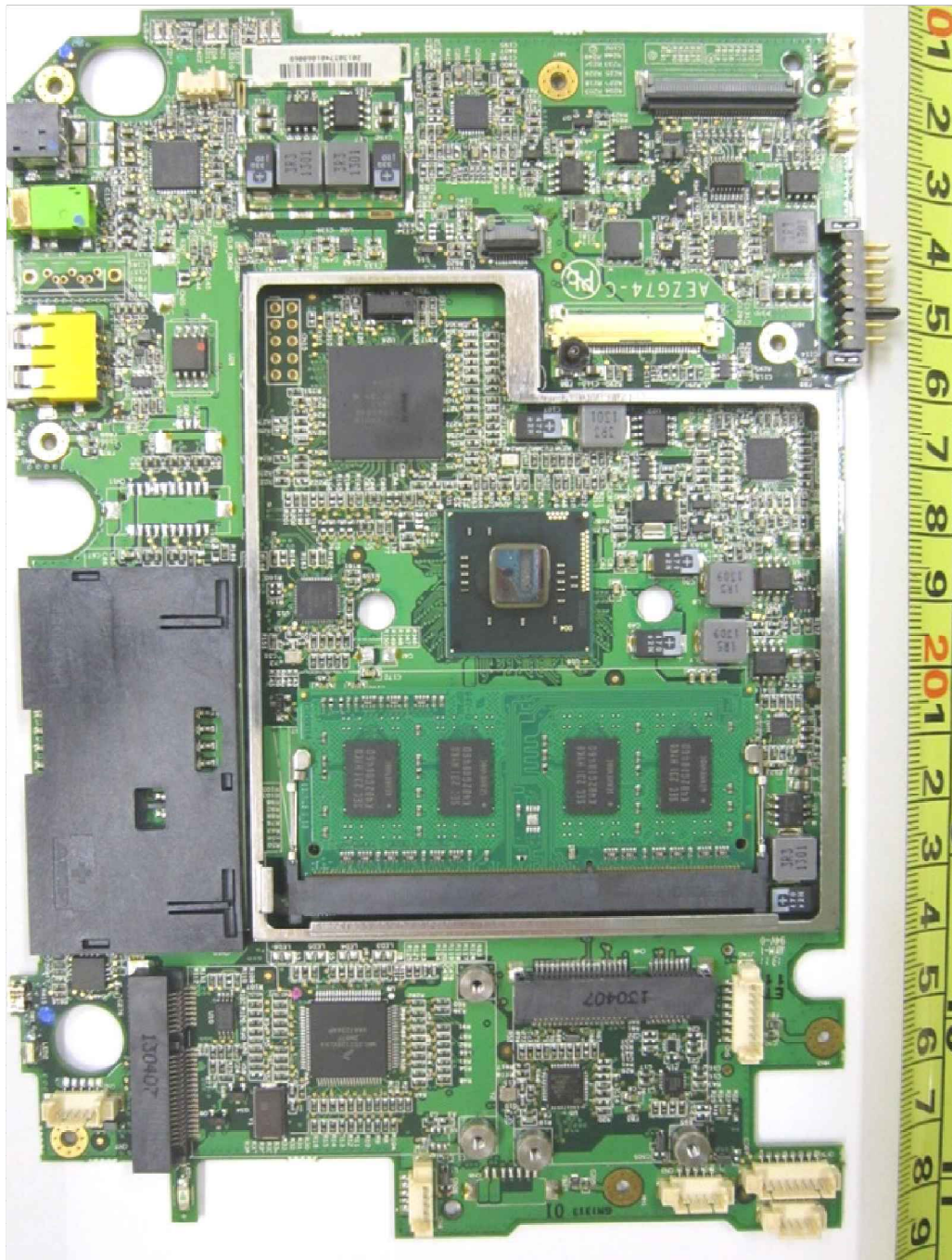
EUT PHOTOGRAPHS – Elo® Tablet



Internal View 2

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

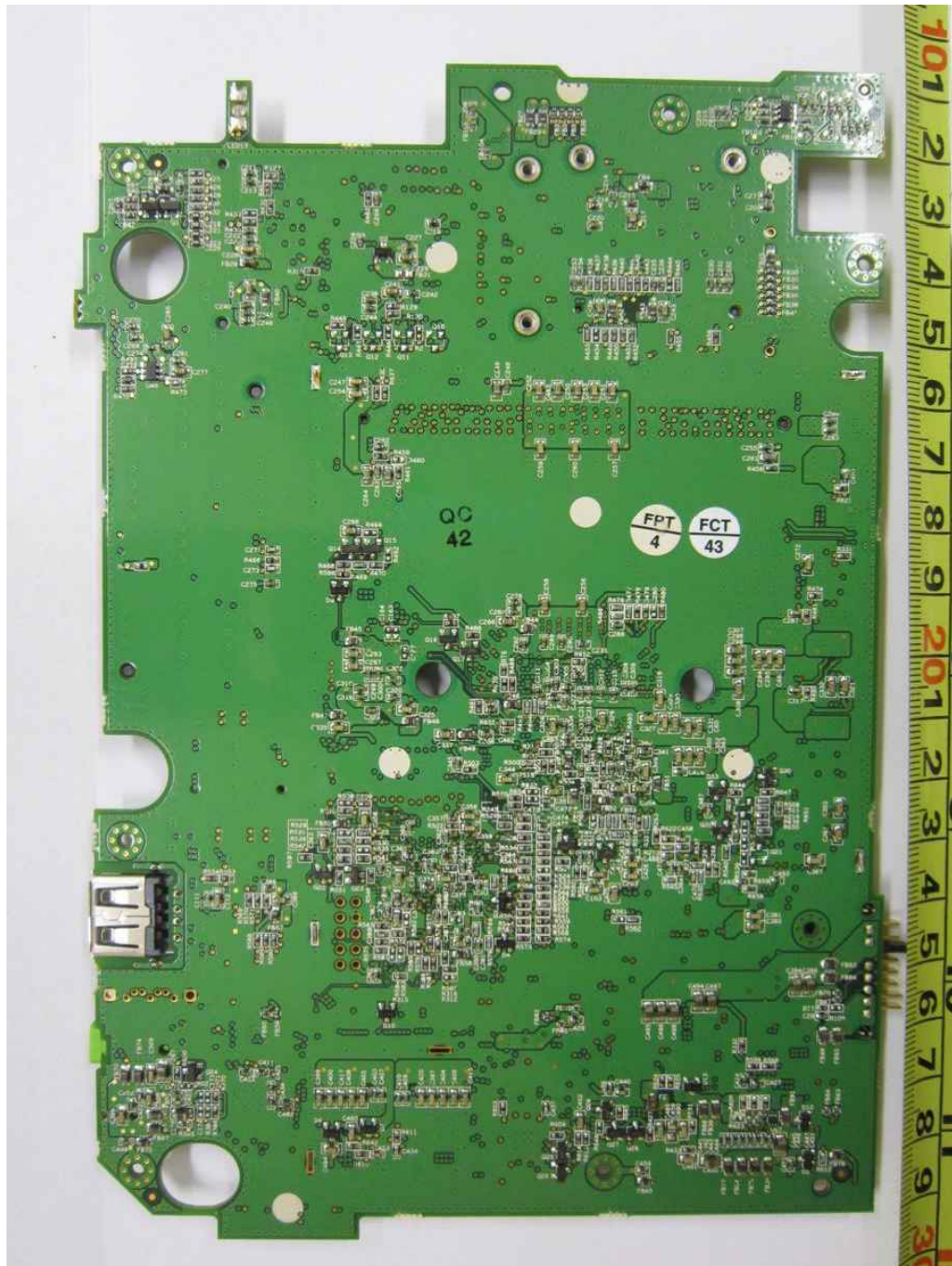
EUT PHOTOGRAPHS – Elo® Tablet



Main-Board PCB Component Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

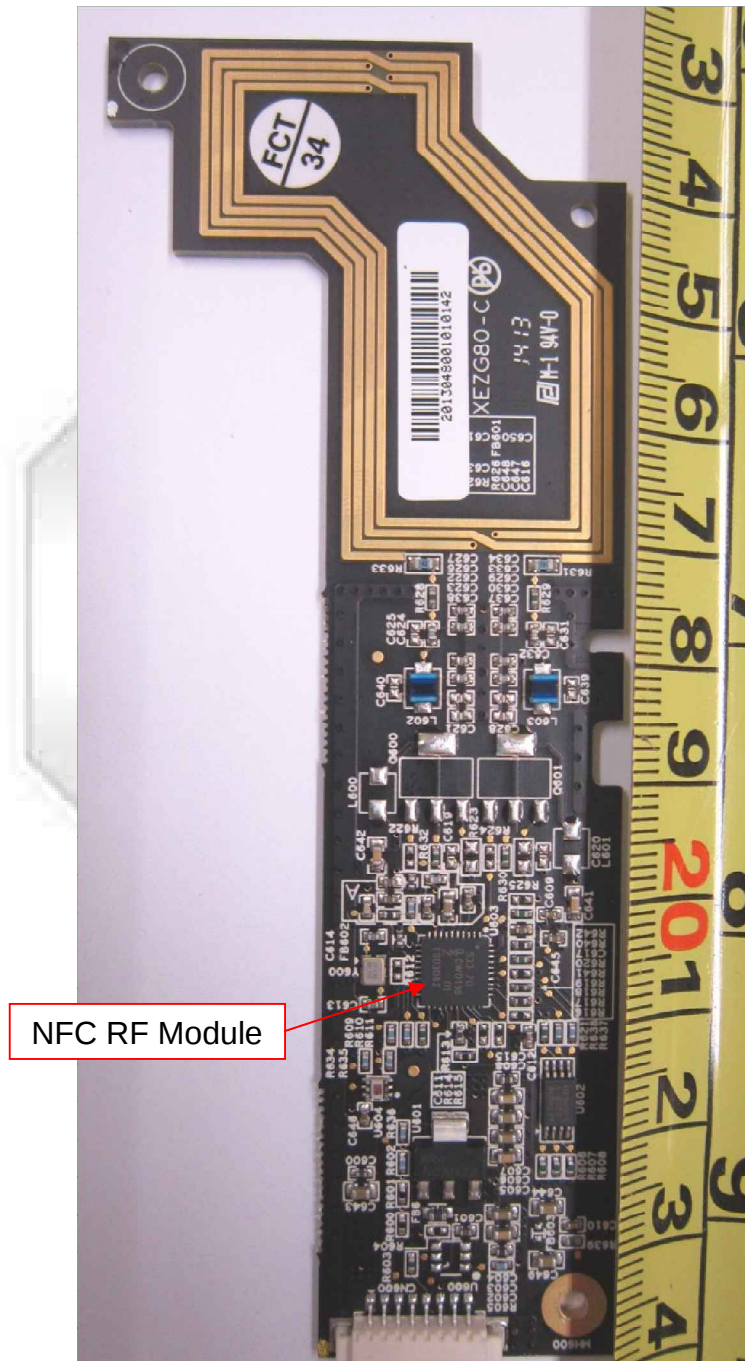
EUT PHOTOGRAPHS – Elo® Tablet



Main-Board PCB Trace Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS – Elo® Tablet



NFC Board PCB Component Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

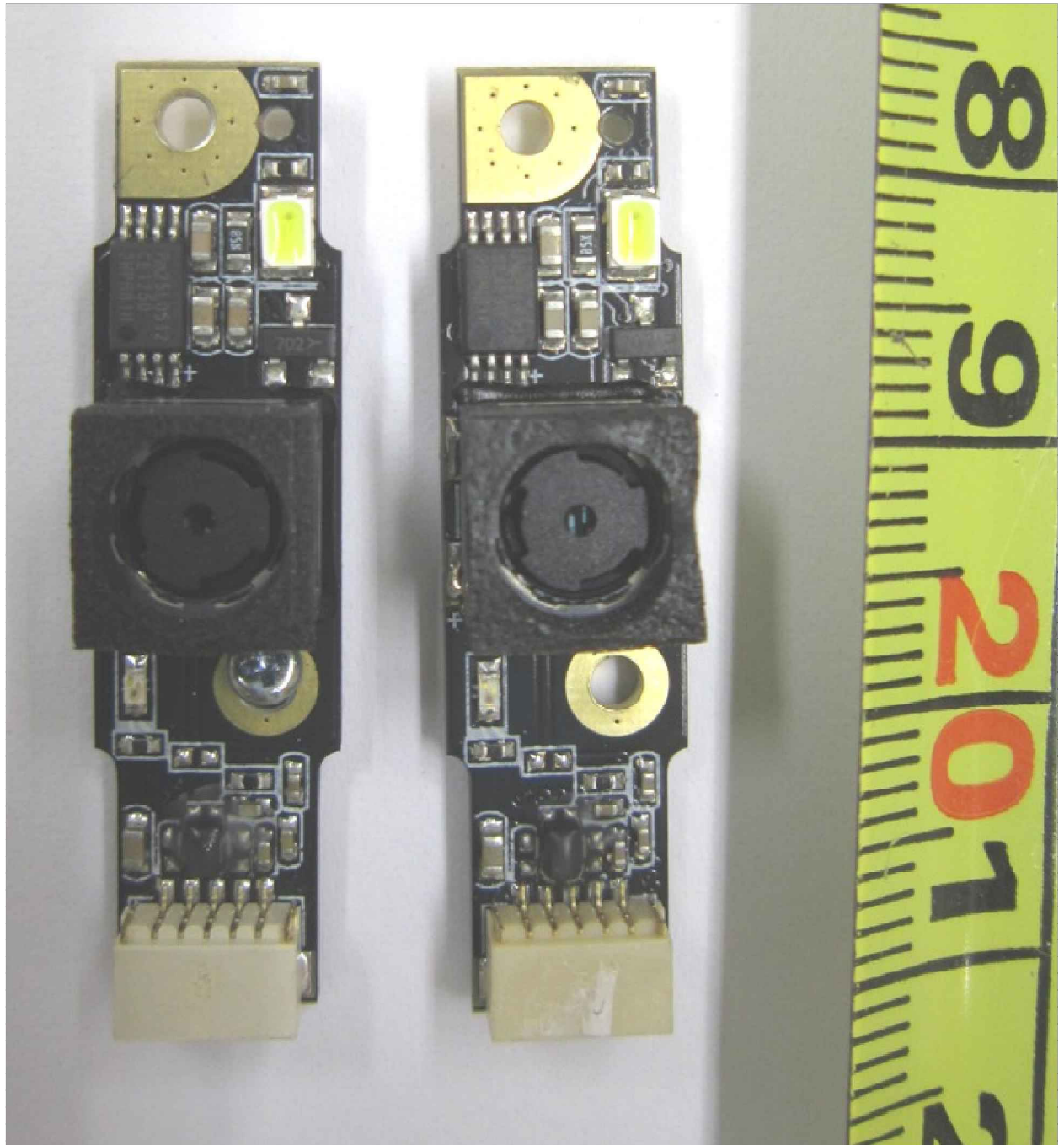
EUT PHOTOGRAPHS – Elo® Tablet



NFC Board PCB Trace Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

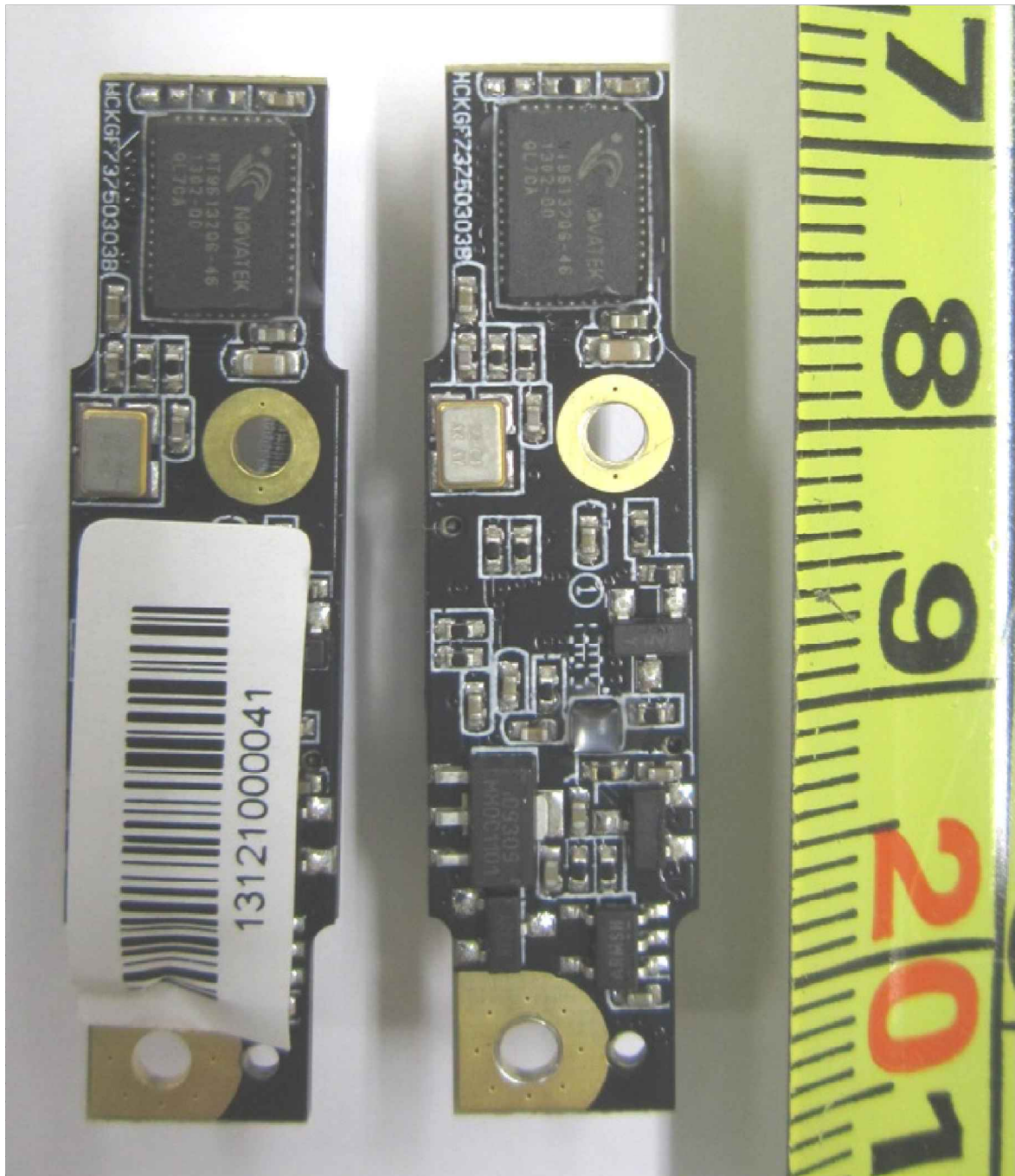
EUT PHOTOGRAPHS – Elo® Tablet



Front and Back Camera Board PCB Component Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS – Elo® Tablet



Front and Back Cameras Board PCB Trace Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

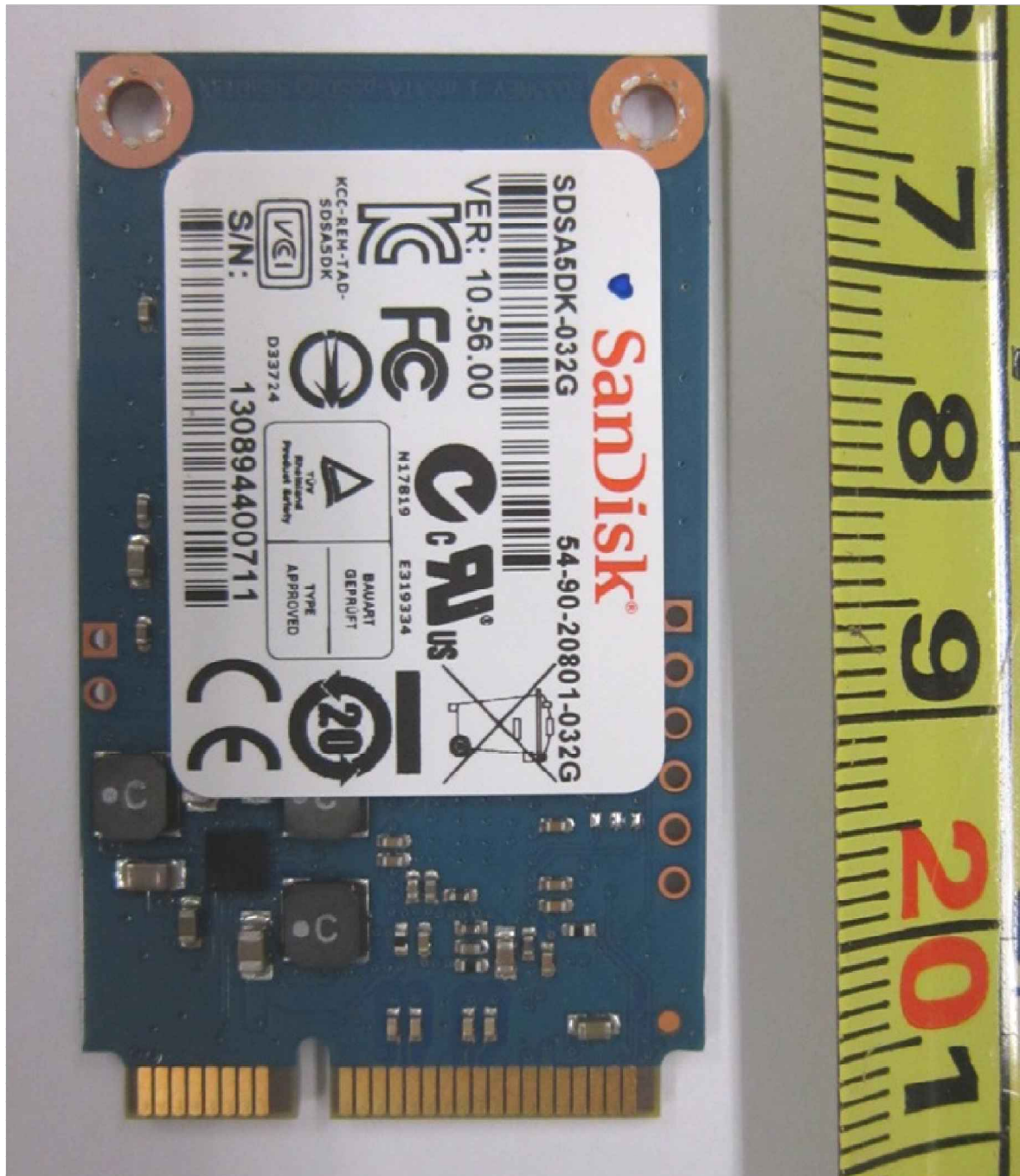
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Solid State Drive Board PCB Component Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS – Elo® Tablet



Solid State Drive Board PCB Trace Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS – Elo® Tablet



Bluetooth/WLAN module Component Side (REALTEL-RTL8723AE)

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

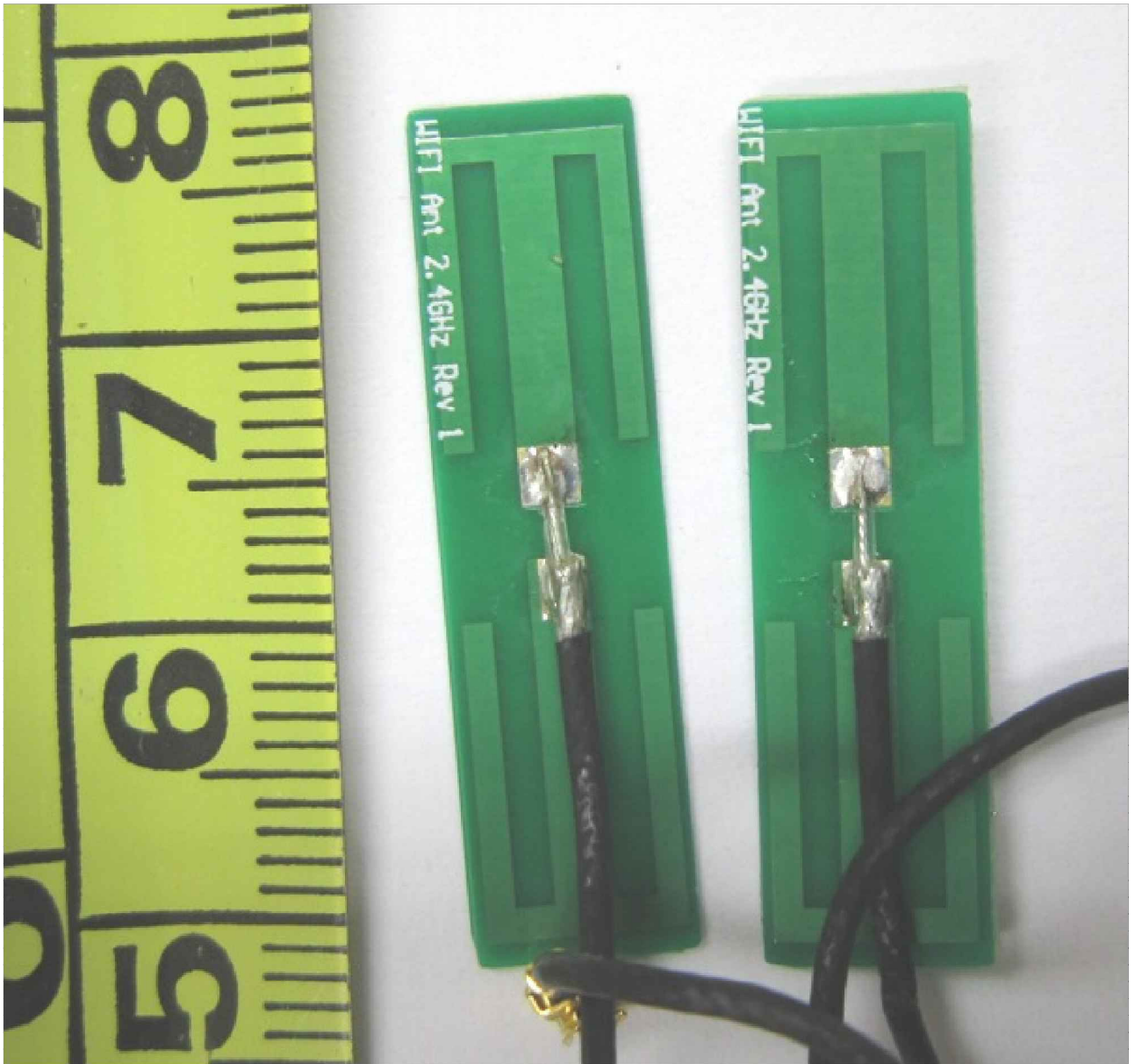
EUT PHOTOGRAPHS – Elo® Tablet



Bluetooth/WLAN module Trace Side (REALTEL-RTL8723AE)

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

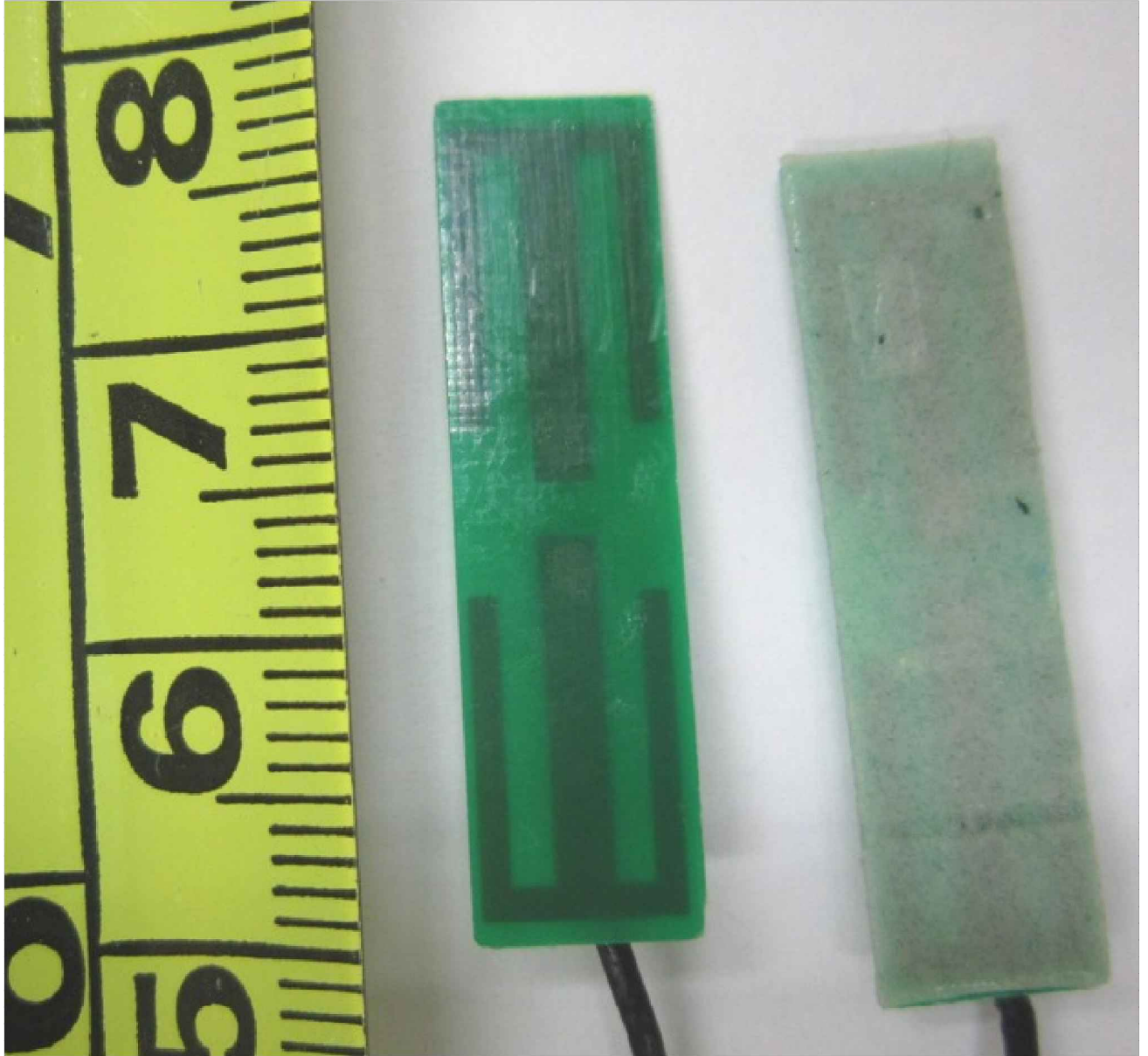
EUT PHOTOGRAPHS – Elo® Tablet



Internal WLAN / BT Antenna-Fit-Ant-Eve-06 & Fit-Ant-Eve-12 Component Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

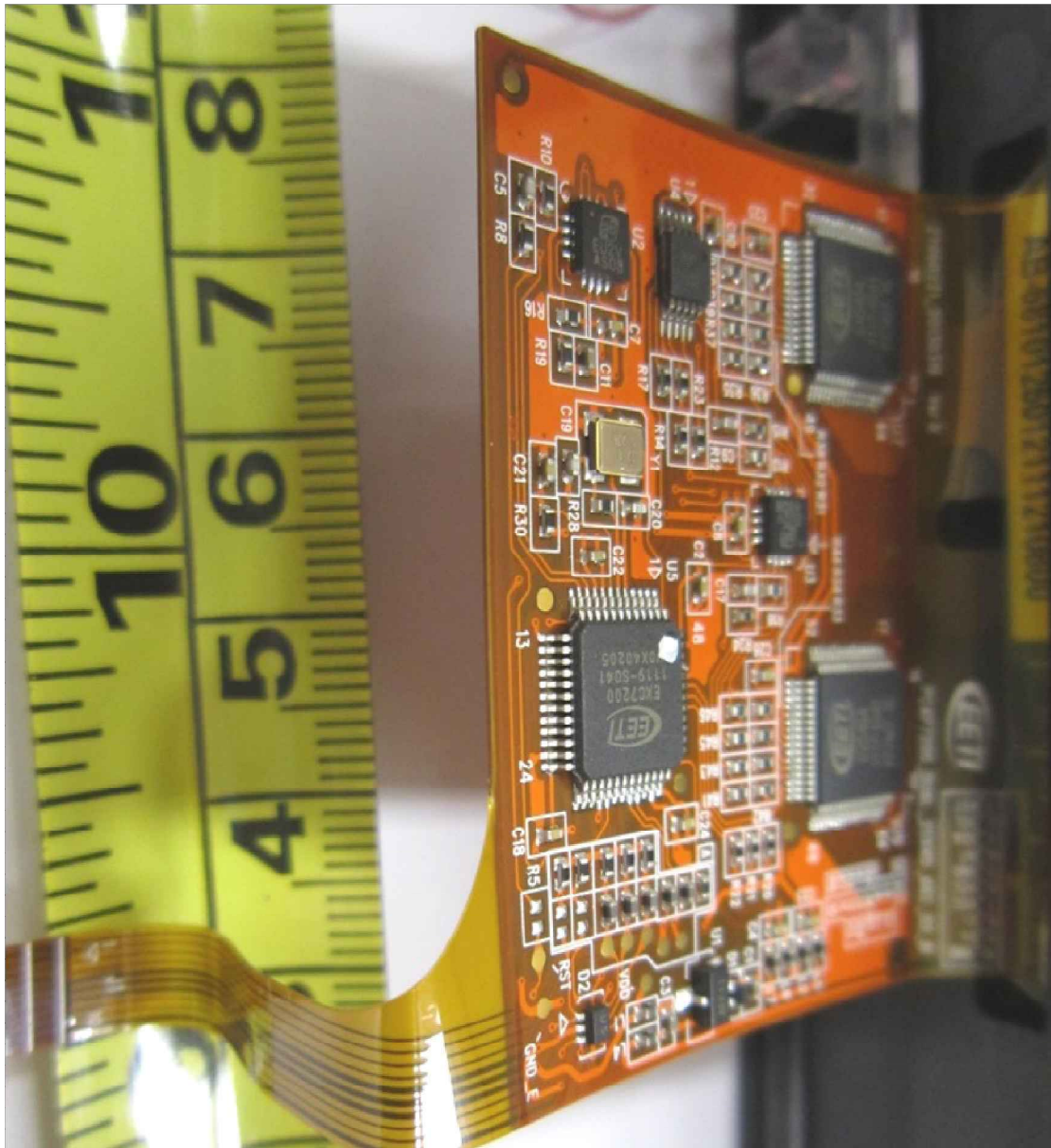
EUT PHOTOGRAPHS – Elo® Tablet



Internal WLAN / BT Antenna-Fit-Ant-Eve-06 & Fit-Ant-Eve-12 Trace Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

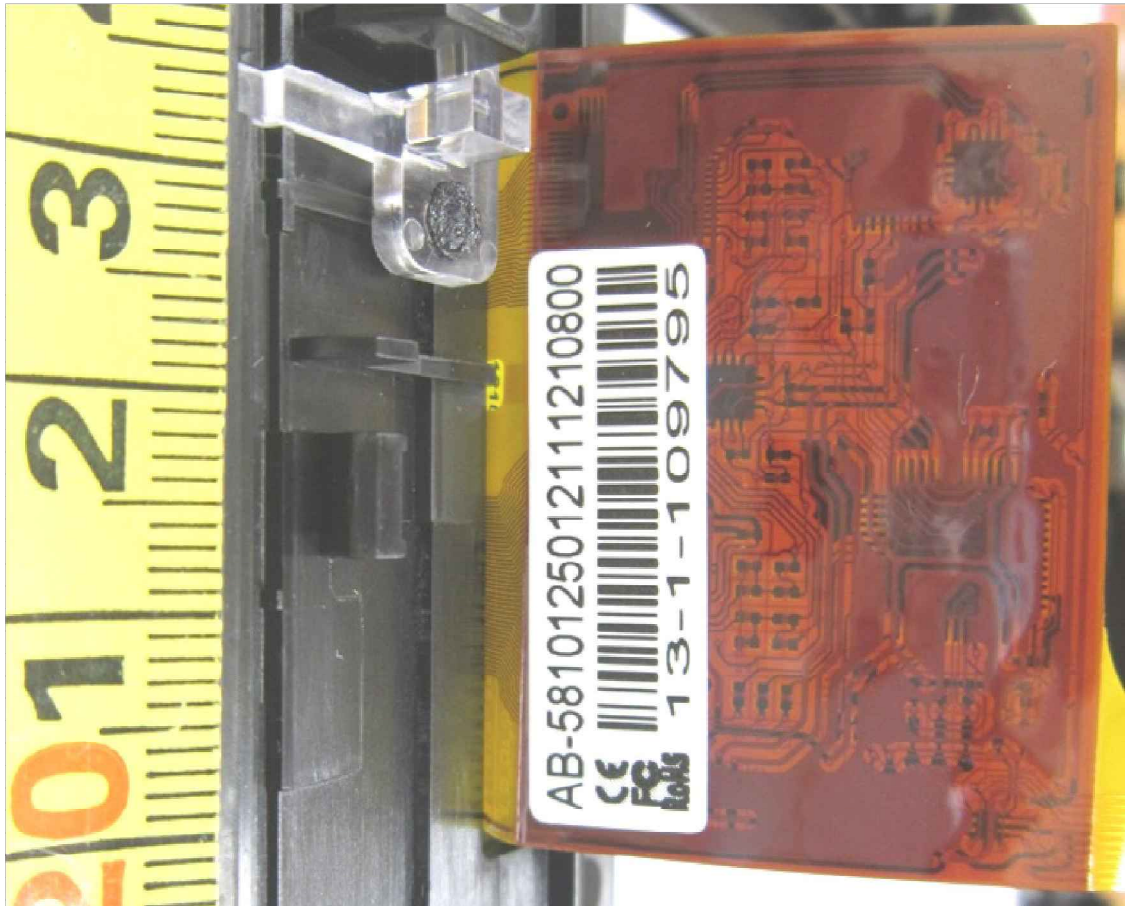
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Touch Screen PCB Component Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS – Elo® Tablet



Touch Screen Board PCB Trace Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

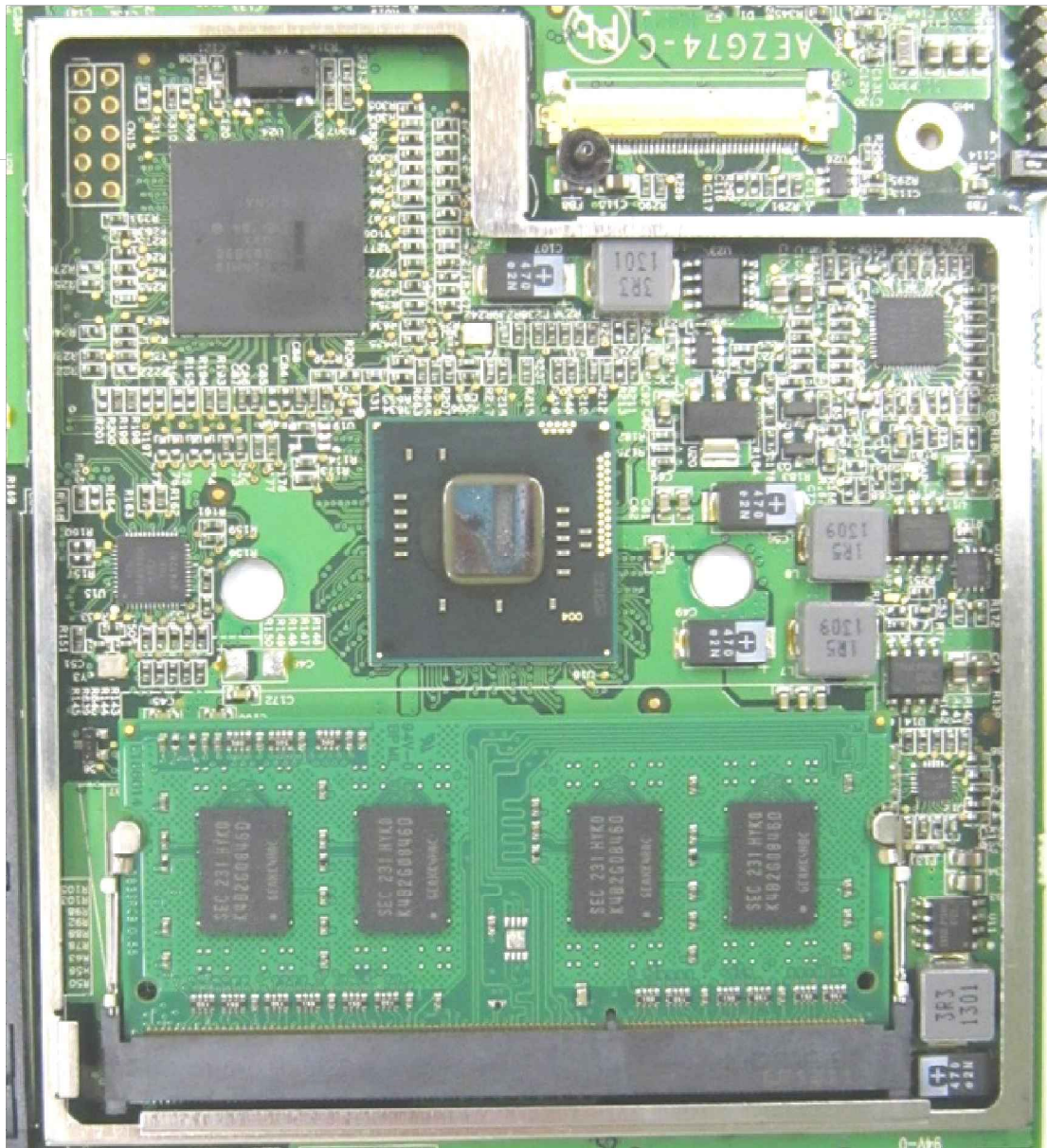
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LCD Board PCB Component Side

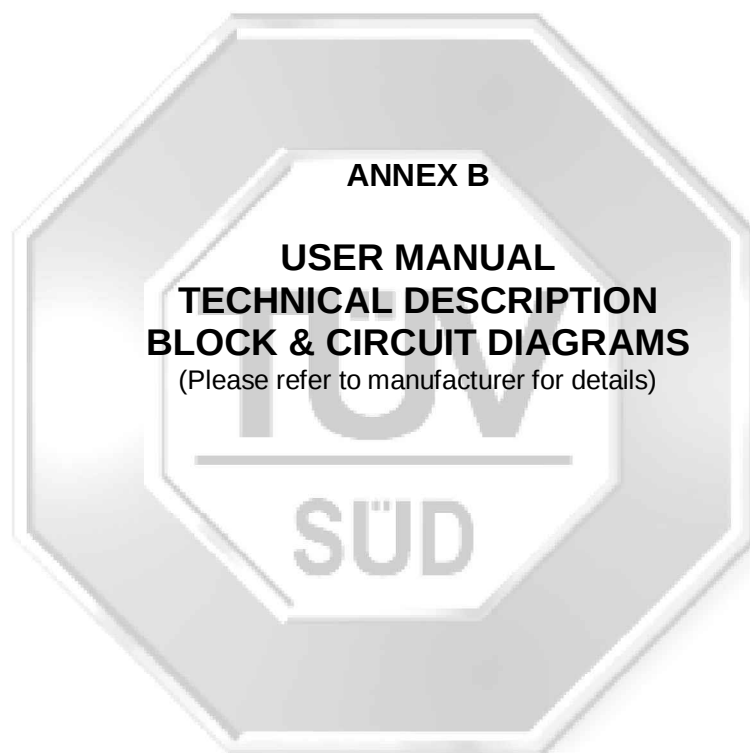
ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS – Elo® Tablet



RAM-DDR3, CPU, Chipset with Shielding Removed

ANNEX B USER MANUAL TECHNICAL DESCRIPTION BLOCK & CIRCUIT DIAGRAMS



ANNEX C FCC LABEL & POSITION

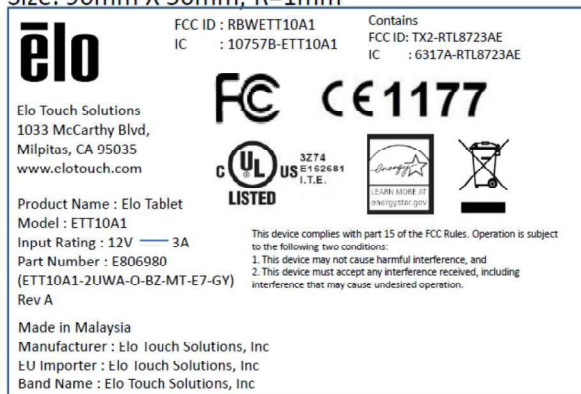


ANNEX C FCC LABEL & POSITION

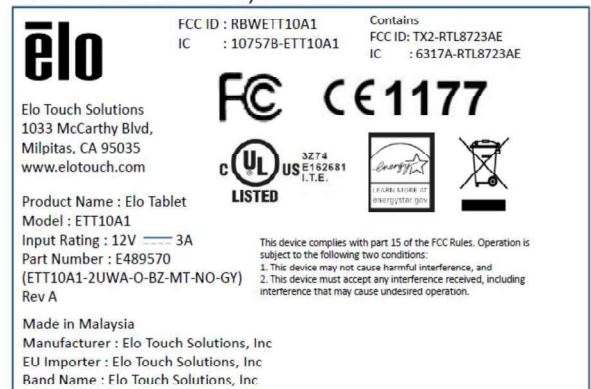
Labelling requirements per Section 2.925 & 15.19

The label shown will be permanently affixed at a conspicuous location on the device and be readily visible to the user at the time of purchase.

Tablet Product label(E806980)
Size: 90mm X 50mm, R=1mm



Tablet Product label(E489570)
Size: 90mm X 50mm, R=1mm



Sample Label

Tablet Product label(E489570) and (E806980) -
Pasting Location

