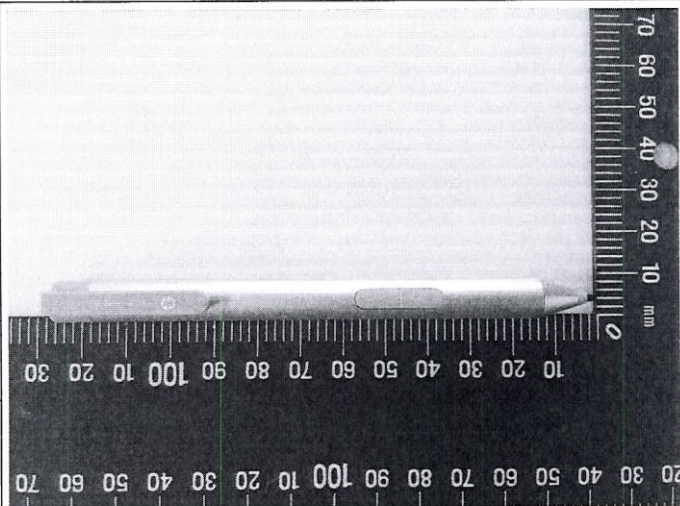
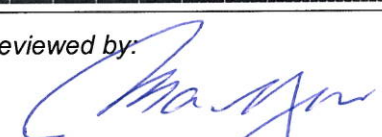


Prüfbericht-Nr.: <i>Test Report No.:</i>	10051974 001	Auftrags-Nr.: <i>Order No.:</i>	114038311	Seite 1 von 18 <i>Page 1 of 18</i>
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	438628	Auftragsdatum: <i>Order date.:</i>	08 Jul. 2015	
Auftraggeber: <i>Client:</i>	Wacom Co., Ltd. Sumitomo Fudosan Shinjuku Grand Twoer 31F, 8-17-1 Nishi-shinjuku, Shinjuku-ku, Tokyo, 160-6131, Japan			
Prüfgegenstand: <i>Test item:</i>	HP Active Pen			
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	HSTNN-W01P			
Auftrags-Inhalt: <i>Order content:</i>	TUV Rheinland - EMC service			
Prüfgrundlage: <i>Test specification:</i>	FCC 47 CFR Part 15, Subpart B: 2014 ICES-003: Issue5: 2012			
Wareneingangsdatum: <i>Date of receipt:</i>	09 Jul. 2015			
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000236683-001			
Prüfzeitraum: <i>Testing period:</i>	Refer to test report			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland Taiwan Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland Taiwan Ltd. Taichung Branch Office			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von / tested by:		kontrolliert von / reviewed by:		
 14 Sep. 2015 Neil J. N. Tsai/ Project Manager		 14 Sep. 2015 Max Y. C. Yao/ Department Manager		
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>
Sonstiges / Other:				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt Test item complete and undamaged		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specifications(s) F(ail) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

V04

TEST SUMMARY

5.1 CONDUCTED EMISSION PER SECTION 15.107, FCC 47 CFR PART 15 SUBPART B

RESULT: N/A

5.2 RADIATED EMISSION PER SECTION 15.109, FCC 47 CFR PART 15 SUBPART B

RESULT: Pass

Contents

1	GENERAL REMARKS	4
1.1	COMPLEMENTARY MATERIALS	4
2	TEST SITES	4
2.1	TEST FACILITIES.....	4
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS.....	5
2.3	CALIBRATION.....	5
2.4	ABBREVIATIONS.....	6
2.5	MEASUREMENT UNCERTAINTY	6
3	GENERAL PRODUCT INFORMATION	7
3.1	PRODUCT FUNCTION AND INTENDED USE.....	7
3.2	RATING AND PHYSICAL CHARACTERISTICS	7
3.3	NOISE GENERATING OR SOURCES OF INTERFERENCE	7
3.4	NOISE SUPPRESSING PARTS.....	7
3.5	SUBMITTED DOCUMENTS.....	7
4	TEST SET-UP AND OPERATION MODES	8
4.1	TEST METHODOLOGY.....	8
4.2	INDEPENDENT AND TEST OPERATION MODES.....	8
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT.....	9
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	9
4.5	TEST SETUP	9
5	TEST RESULTS E M I S S I O N	10
5.1	CONDUCTED EMISSION PER SECTION 15.107, 47 CFR PART 15 SUBPART B.....	10
5.2	RADIATED EMISSION PER SECTION 15.109, 47 CFR PART 15 SUBPART B	11
6	PHOTOGRAPHS OF TEST SETUP.....	16
7	LIST OF TABLES	18
8	LIST OF FIGURES.....	18
9	LIST OF PICTURES.....	18

1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report.

2 Test Sites

2.1 Test Facilities

Laboratory:

TUV Rheinland Taiwan Ltd. Taichung Branch Office
No.9, Lane 36, Minsheng Rd., Sec. 3, Daya District, Taichung City 428, Taiwan, R.O.C.

Test Facility:

TÜV Rheinland Taiwan Ltd.
11F., No.758, Sec. 4, Bade Rd., Songshan Dist., Taipei City 105, Taiwan, R.O.C.

The Federal Communications Commission has reviewed the technical characteristics of the radiated and conducted emission facilities and has found these test sites to be in compliance with the requirements under 47 CFR section 2.948. The registration number: 365730.

The Industry Canada has reviewed the technical characteristics of the radiated and conducted emission facilities and has found these test sites to be in compliance with the Canadian requirements. The filing number: 9465A.

The test facility is accredited by TAF (member of ILAC), under number 0759 according to ISO/IEC 17025:2005.

TÜV Rheinland Taiwan Ltd. is accredited by the Federal Communications Commission as a Conformity Assessment Body under Designation Number TW1065 and Test Firm Registration#: 799772.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

For EMI/ Conduction Measurement (Taipei: Shield Room)

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
1	Test Receiver	Rohde & Schwarz	ESCI7	100797	2014/12/27	2015/12/27
2	LISN (1 phase)	Rohde & Schwarz	ENV216	101243	2015/06/01	2016/06/01
3	LISN	Rolf Heine	NNB-2/16Z	99080	2014/08/25	2015/08/25
4	Telecom ISN 2 Line	FCC	FCC-TLISN-T2-02-09	101169	2014/08/25	2015/08/25
5	Telecom ISN 8 Line	FCC	FCC-TLISN-T8-02-09	101167	2014/08/25	2015/08/25
6	4 balance telecom pair ISN	FCC	F-070306-1057-1	101166	2014/08/26	2015/08/26

For EMI/Radiation Measurement (Taipei: Semi-Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
1	Test Receiver	Rohde & Schwarz	ESR7	101062	2014/08/30	2015/08/30
2	Spectrum Analyzer	Rohde & Schwarz	FSV-40	100921	2014/12/16	2015/12/16
3	Pre-Amplifier	HP	8447F	2805A03335	2014/08/22	2015/08/22
4	Pre-Amplifier	Com-Power	PAM-840	461257	2014/08/25	2015/08/25
5	Pre-Amplifier	EM Electronics	EM01G18G	060558	2014/11/03	2015/11/03
6	Bilog Antenna	TESEQ	CBL6111D	29802	2014/07/04	2016/07/04
7	Horn Antenna	ETS-Lindgren	3117	00138160	2015/01/12	2017/01/12
8	Horn Antenna	Com-Power	AH-840	101029	2014/09/26	2016/09/26
9	Loop Antenna	Schwarzbeck	FMZB 1513	1513-076	2014/10/21	2016/10/21

Conformance of the used measurement and test equipment with the requirements of ISO/IEC 17025:2005 has been confirmed before testing.

2.3 Calibration

All equipment requiring calibration is calibrated periodically by the manufacturer or accredited calibration services according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.4 Abbreviations

PASS means 'complied with requirement'	N/A means 'not applicable'
FAIL means 'not complied'	N.C.R. means 'no calibration required'

2.5 Measurement Uncertainty

Table 2: Measurement Uncertainty

Testing Item	Frequency Range	Uncertainty
Radiated Emission (966 Chamber: 3m)	30MHz - 1000MHz	2.80 dB
Radiated Emission (966 Chamber: 3m)	Above 1GHz	3.04 dB

Note:

The uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

3 General Product Information

3.1 Product Function and Intended Use

The tested sample is a "HP Active Pen" with model number "HSTNN-W01P" for new approval, which is intended to be used to control Tablet PC via Bluetooth connection.

3.2 Rating and Physical Characteristics

Type Designation:	HSTNN-W01P
Battery rating:	1.5Vdc battery
Protection Class:	N/A

For details, refer to rating labels and user manual.

3.3 Noise Generating or Sources of Interference

- 1) IC circuits
- 2) 2MHz Crystal

Please refer to attachment photo document for detail

3.4 Noise Suppressing Parts

Please refer to Attachment Photo Documentation for details.

3.5 Submitted Documents

- 1) Circuit diagram
- 2) Block diagram

4 Test Set-up and Operation Modes

4.1 Test Methodology

The test methodology used is based on the requirement of 47 CFR PART 15, section 15.31, 15.33, 15.35, 15.107 and 15.109 or ICES-003.

The test methods, which have been used, are based on ANSI C63.4 or CAN/CSA-CEI/IEC CISPR 22.

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Independent and Test Operation Modes

A. The EUT was linked to Tablet PC and monitored the EUT's operation signal.

The basic operation mode is:

A. BT link

The justification and manipulation of cables and equipment in order to simulate a worst-case behavior of the test setup has been carried out as prescribed in ANSI C 63.4 or in CAN/CSA-CEI/IEC CISPR22.

Refer to Test setup in chapter 4.5.

4.3 Special Accessories and Auxiliary Equipment

The EUT was tested as an independent unit with the following equipment:

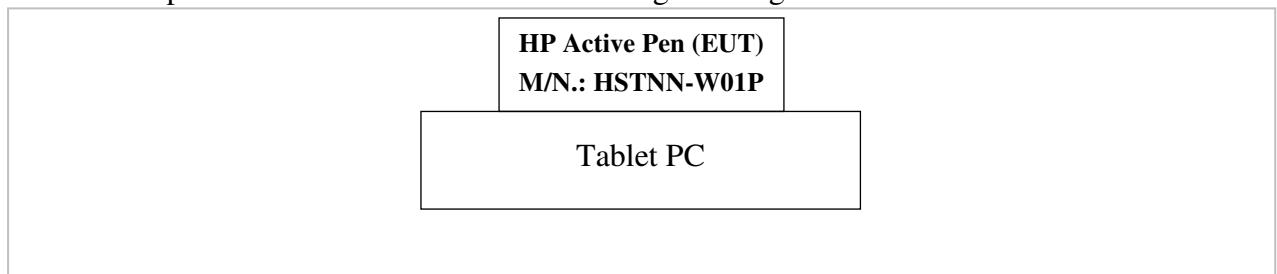
Description	Manufacturer	Model No.	Serial No.	Certification
Tablet PC	DELL	7N557	CN-SLE3C3-76206-4BH-801J	DoC

4.4 Countermeasures to achieve EMC compliance

The test sample which has been tested contained the noise suppression parts as described in the constructional data form or technical construction file or refer to the attachment photo document of test report. No additional measures were employed to achieve compliance.

4.5 Test Setup

The test setup was realized on a table of 80-cm height during all tests as described herein.



Signal Cable Type	Signal Cable Description
A N/A	N/A

5 Test Results EMISSION

5.1 Conducted Emission per section 15.107, 47 CFR part 15 subpart B

RESULT:	N/A
----------------	-----

Port: AC Mains
Test Procedure : ANSI C63.4 (2009) Clause 7.3
Deviations from standard
test procedure : None
Frequency Range : 0.15 – 30MHz
Limits : FCC Part 15 Subpart B Section 15.107 (a) class B
Kind of Test Site : Conducted Room (Shield)
The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

5.2 Radiated Emission

per section 15.109, 47 CFR part 15 subpart B

RESULT:**PASS**

Port: Enclosure
Test Procedure : ANSI C63.4 (2009) Clause 8.3
Deviations from standard
test procedure : None
Frequency Range : 30 – 1000MHz
Limits : FCC Part 15 Subpart B Section 15.109 (a) class B

Kind of Test Site : 966 Semi-anechoic chamber (3m distance)

Test Setup

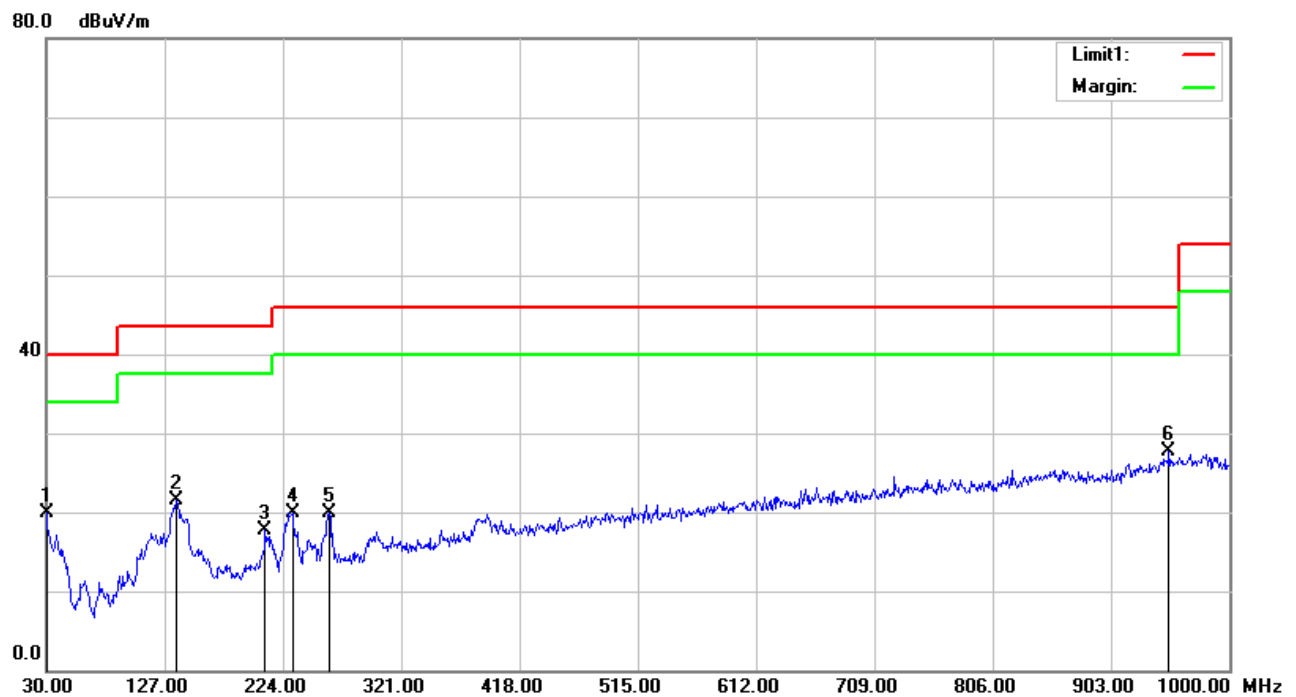
The following setup caused the highest disturbance:

Date of Testing : 22 Jul. 2015
Input Voltage : 1.5Vdc battery
Operational Mode : See 4.2
Temperature 23.9 °C
Relative Humidity 53 %

The highest frequency generated or used in the device or on which the operates or tunes of the EUT:

- ☐ below 1.705M, measuring up to 30MHz
☐ 1.705-108M, measuring up to 1000MHz
☐ 108-500MHz, measuring up to 2000MHz
☐ 500-1000MHz, measuring up to 5000MHz
☒ above 1000MHz, measuring up to 5th harmonic of the highest frequency or 40GHz, whichever is lower.

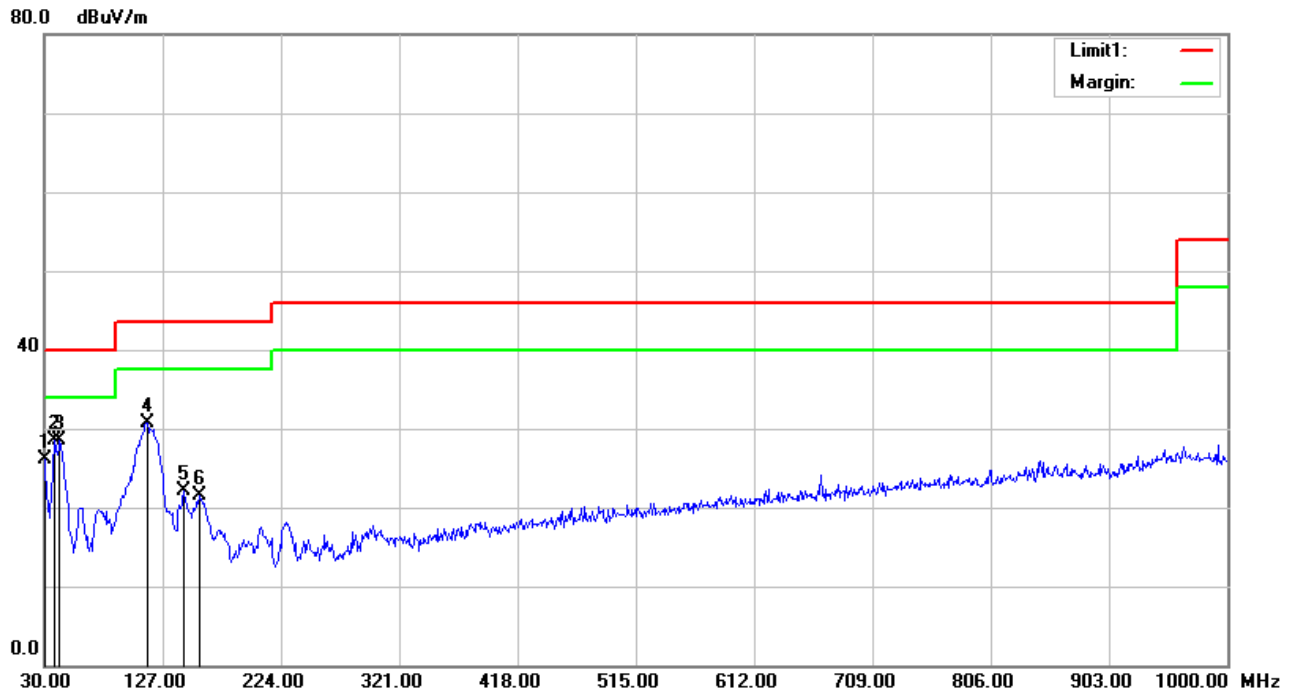
Note: The highest frequency is 2.4GHz for wireless function.

Figure 1: Radiated Emission; 30 – 1000 MHz
Horizontal


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (°)	P/F	Remark
1	30.0000	-6.03	25.97	19.94	40.00	-20.06	QP	400	360	P	
2	136.6999	-12.75	34.25	21.50	43.50	-22.00	QP	200	176	P	
3	209.4499	-14.55	32.19	17.64	43.50	-25.86	QP	100	163	P	
4	231.7599	-13.29	33.15	19.86	46.00	-26.14	QP	100	189	P	
5	261.8299	-10.95	30.77	19.82	46.00	-26.18	QP	100	142	P	
6	950.5299	-0.24	27.85	27.61	46.00	-18.39	QP	400	75	P	

Note 1: Level = Reading + Factor

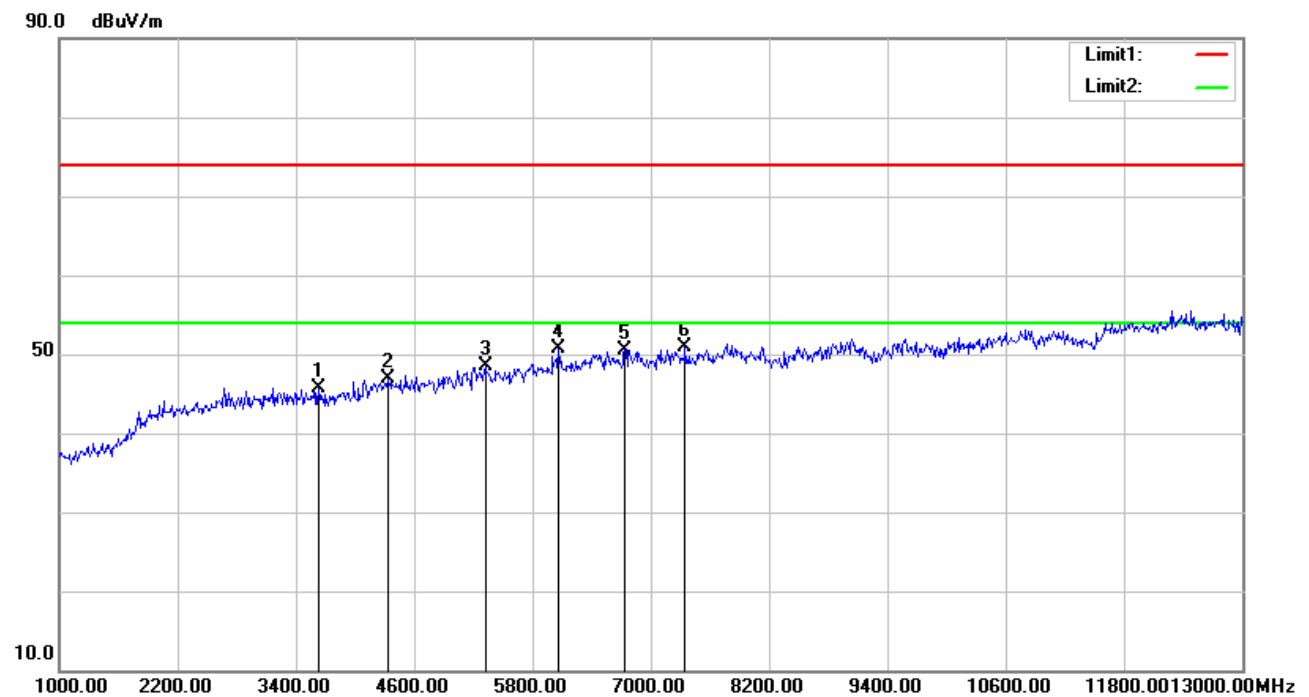
Note 2: Margin = Level - Limit

Vertical


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (°)	P/F	Remark
1	30.0000	-6.03	32.10	26.07	40.00	-13.93	QP	100	304	P	
2	38.7300	-10.97	39.54	28.57	40.00	-11.43	QP	100	243	P	
3	42.6100	-13.22	41.76	28.54	40.00	-11.46	QP	100	113	P	
4	114.3900	-13.40	44.17	30.77	43.50	-12.73	QP	100	216	P	
5	144.4600	-12.91	34.93	22.02	43.50	-21.48	QP	100	152	P	
6	157.0700	-13.47	35.06	21.59	43.50	-21.91	QP	100	155	P	

Note 1: Level = Reading + Factor

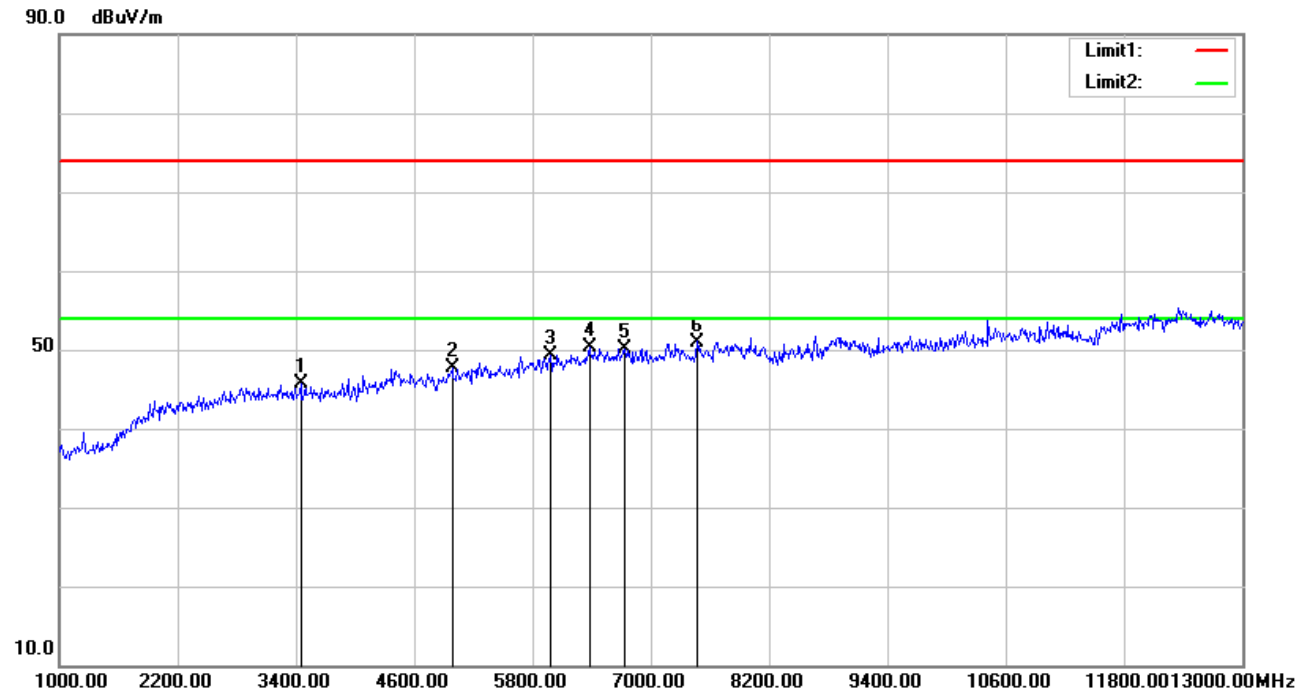
Note 2: Margin = Level - Limit

Figure 2: Radiated Emission; Above 1 GHz
Horizontal


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (°)	P/F	Remark
1	3628.000	-6.01	51.80	45.79	74.00	-28.21	peak	100	359	P	
2	4336.000	-4.15	50.97	46.82	74.00	-27.18	peak	100	231	P	
3	5320.000	-1.19	49.64	48.45	74.00	-25.55	peak	100	178	P	
4	6064.000	3.29	47.37	50.66	74.00	-23.34	peak	100	275	P	
5	6736.000	4.58	45.97	50.55	74.00	-23.45	peak	100	14	P	
6	7348.000	5.17	45.76	50.93	74.00	-23.07	peak	100	45	P	

Note 1: Level = Reading + Factor

Note 2: Margin = Level - Limit

Vertical


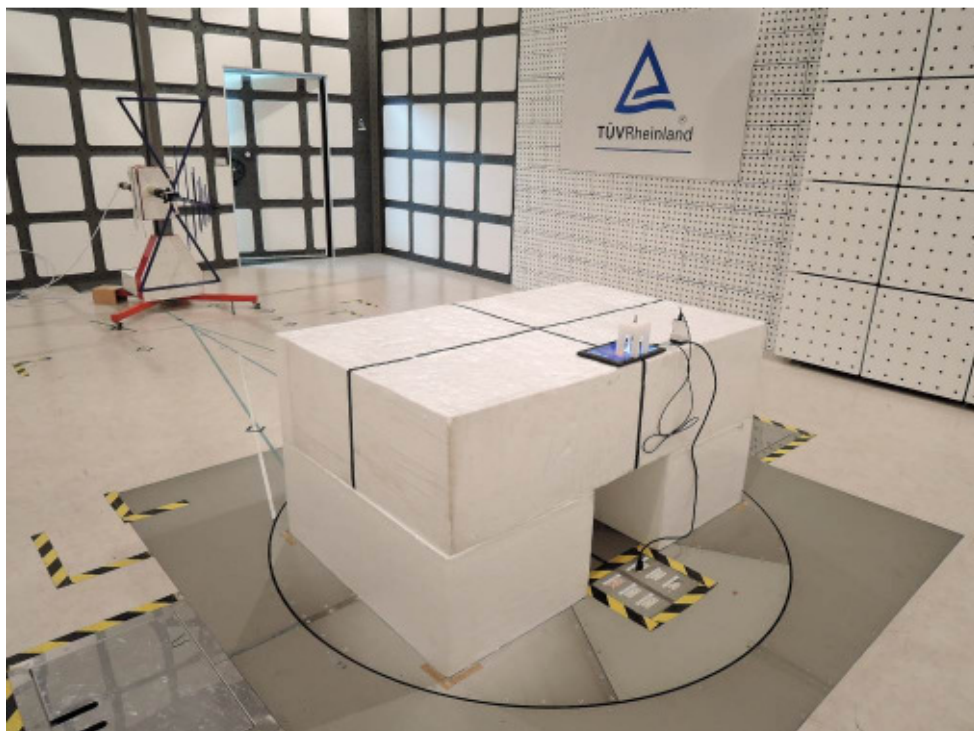
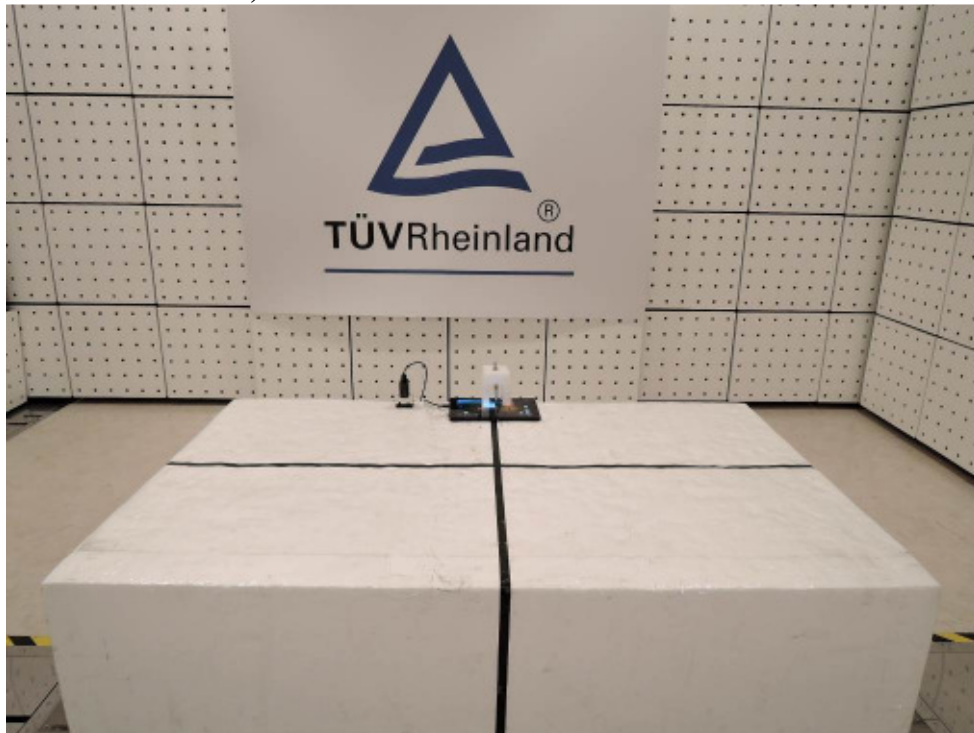
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (°)	P/F	Remark
1	3448.000	-6.25	51.86	45.61	74.00	-28.39	peak	100	360	P	
2	4984.000	-2.93	50.73	47.80	74.00	-26.20	peak	100	174	P	
3	5980.000	2.91	46.39	49.30	74.00	-24.70	peak	100	185	P	
4	6376.000	4.52	45.83	50.35	74.00	-23.65	peak	100	223	P	
5	6736.000	4.58	45.59	50.17	74.00	-23.83	peak	100	88	P	
6	7468.000	5.53	45.47	51.00	74.00	-23.00	peak	100	124	P	

Note 1: Level = Reading + Factor

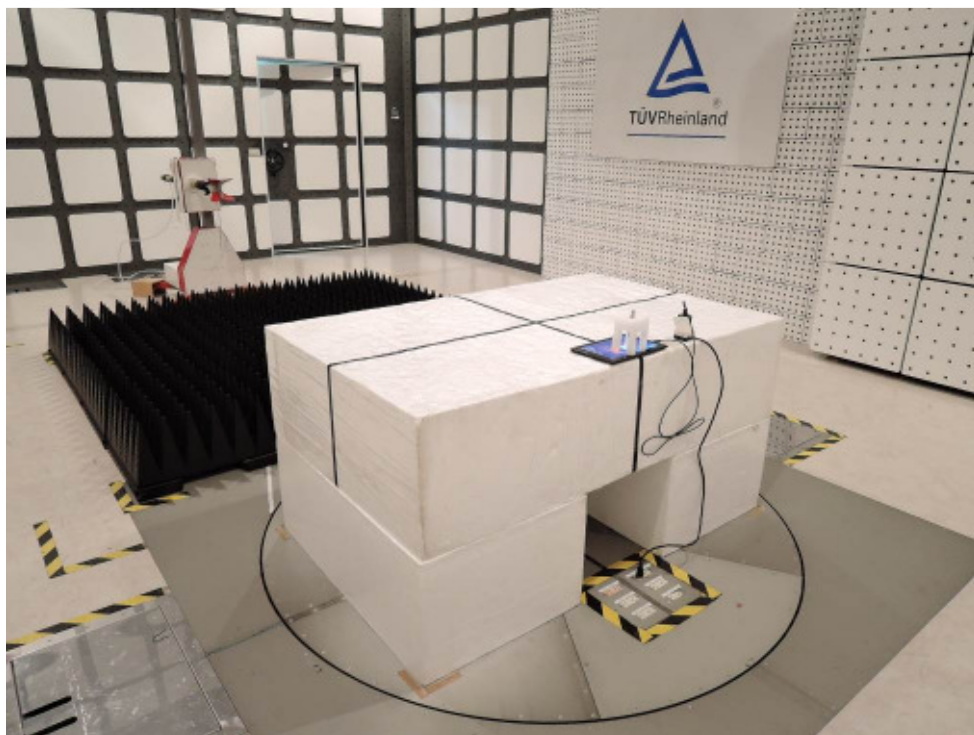
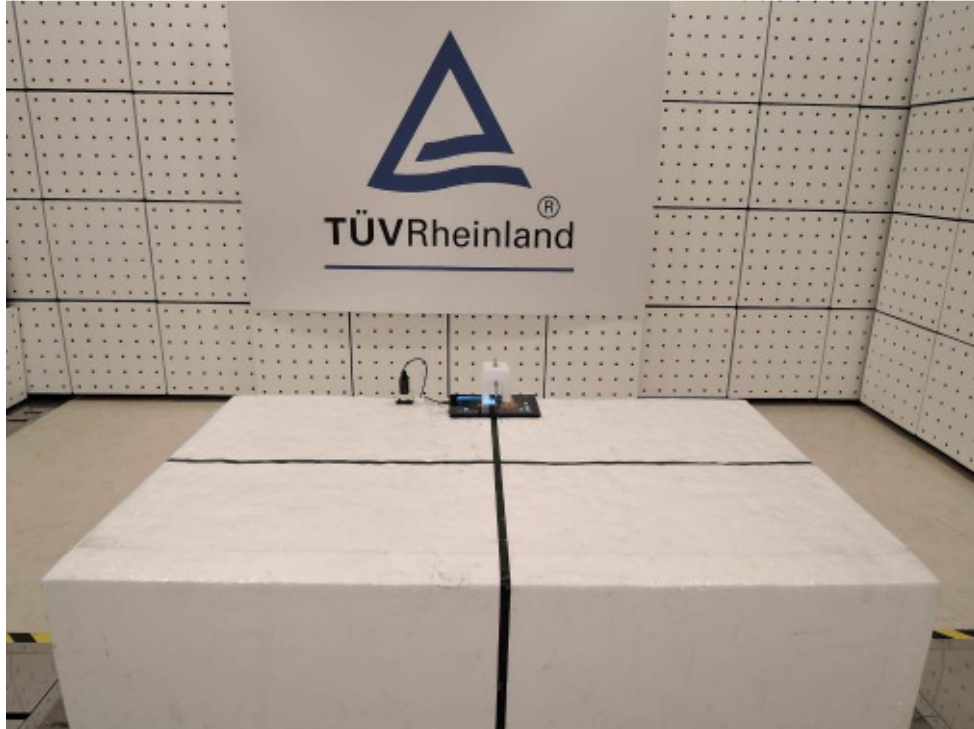
Note 2: Margin = Level - Limit

6 Photographs of Test Setup

Picture 1: Radiated Emission, 30 - 1000 MHz



Picture 2: Radiated Emission, Above 1 GHz



7 List of Tables

TABLE 1: LIST OF TEST AND MEASUREMENT EQUIPMENT	5
TABLE 2: MEASUREMENT UNCERTAINTY	6

8 List of Figures

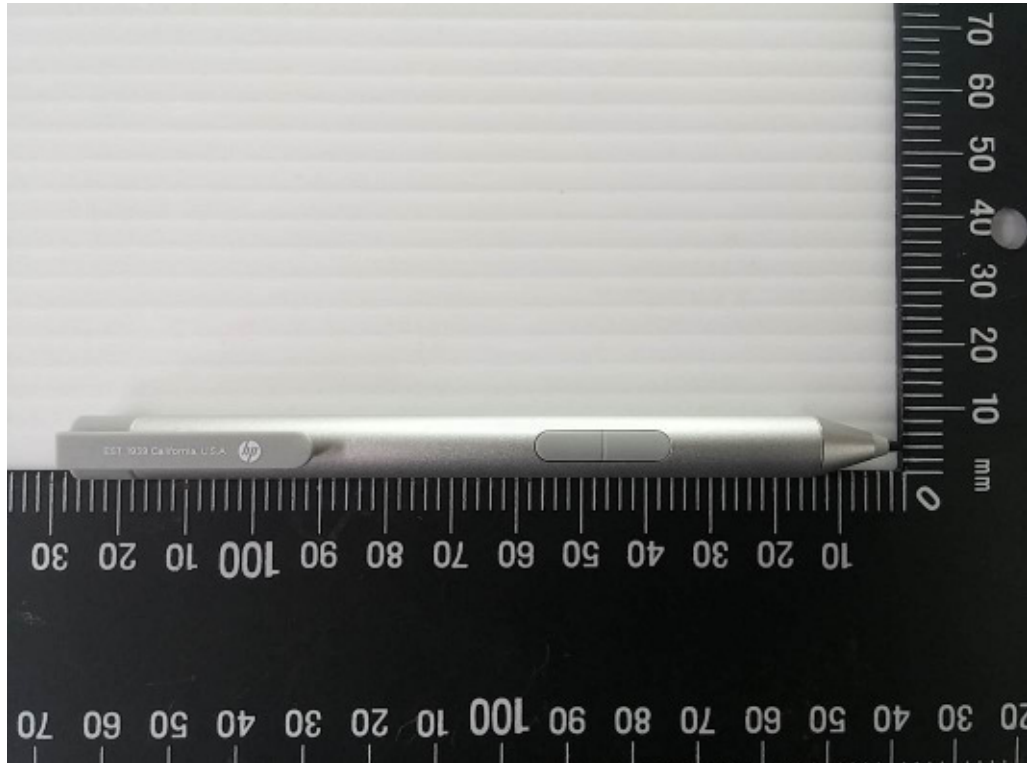
FIGURE 1: RADIATED EMISSION; 30 – 1000 MHz	12
FIGURE 2: RADIATED EMISSION; ABOVE 1 GHz	14

9 List of Pictures

PICTURE 1: RADIATED EMISSION, 30 - 1000 MHz	16
PICTURE 2: RADIATED EMISSION, ABOVE 1 GHz	17

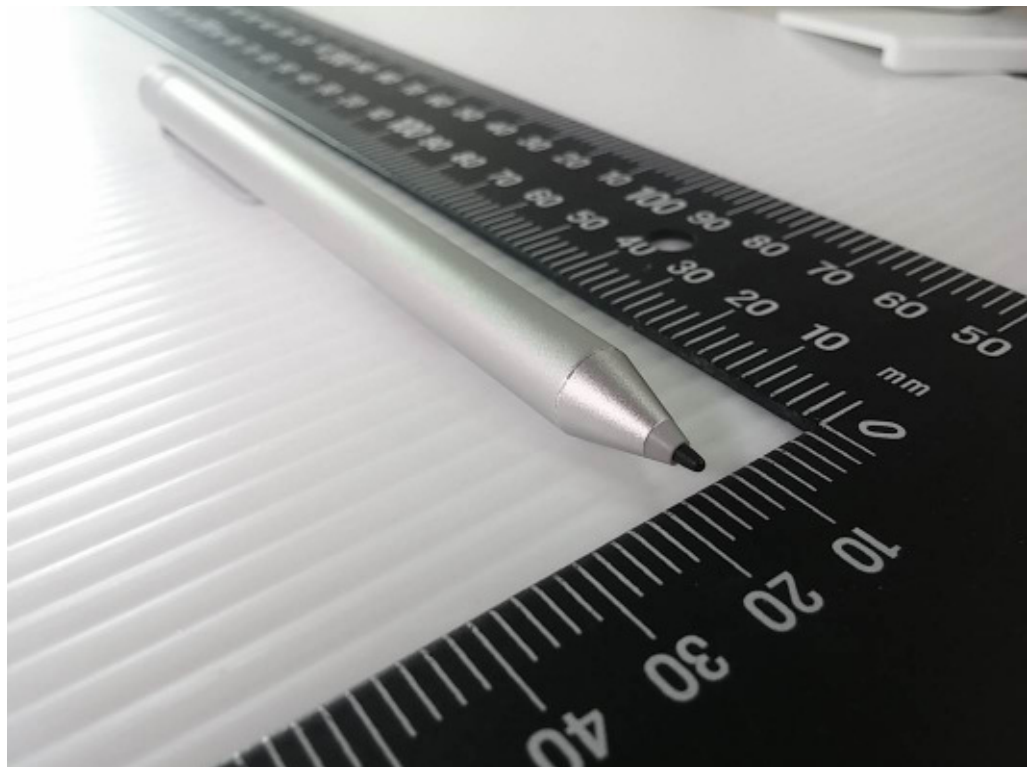
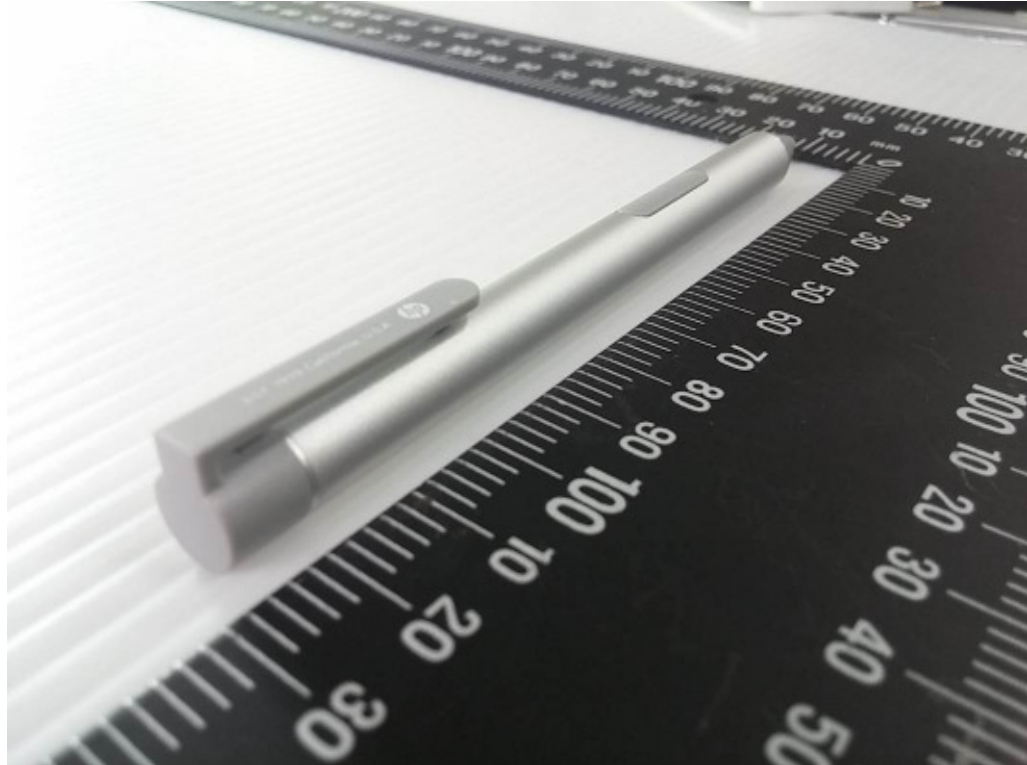
Product: HP Active Pen

Type Designation: HSTNN-W01P



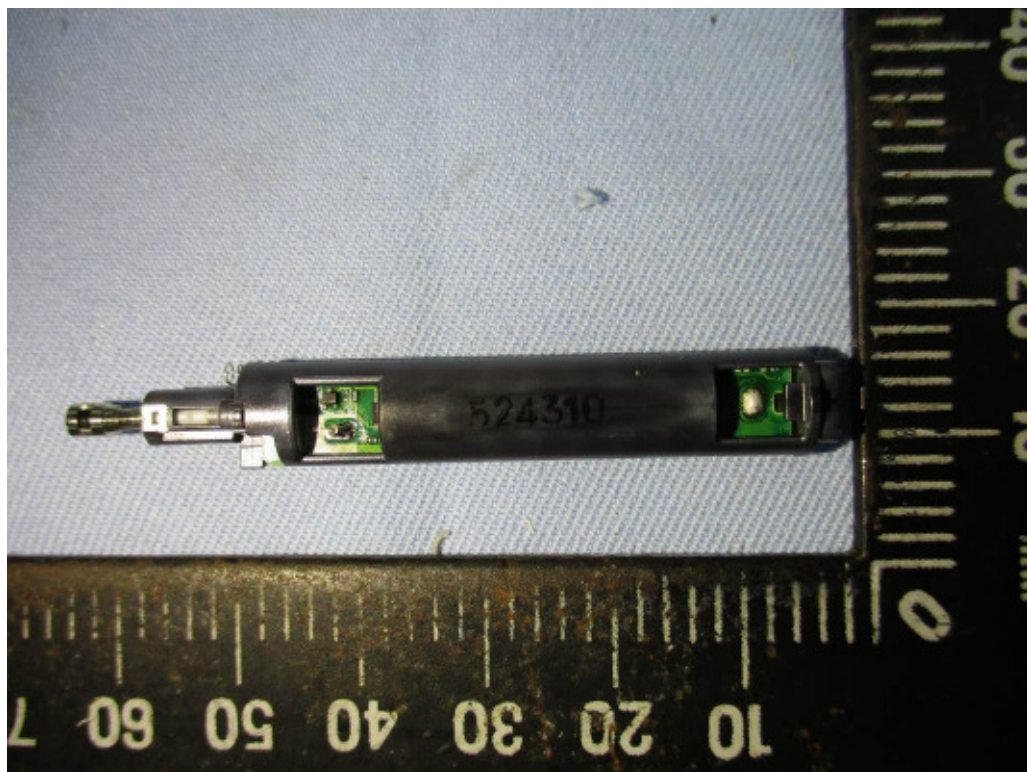
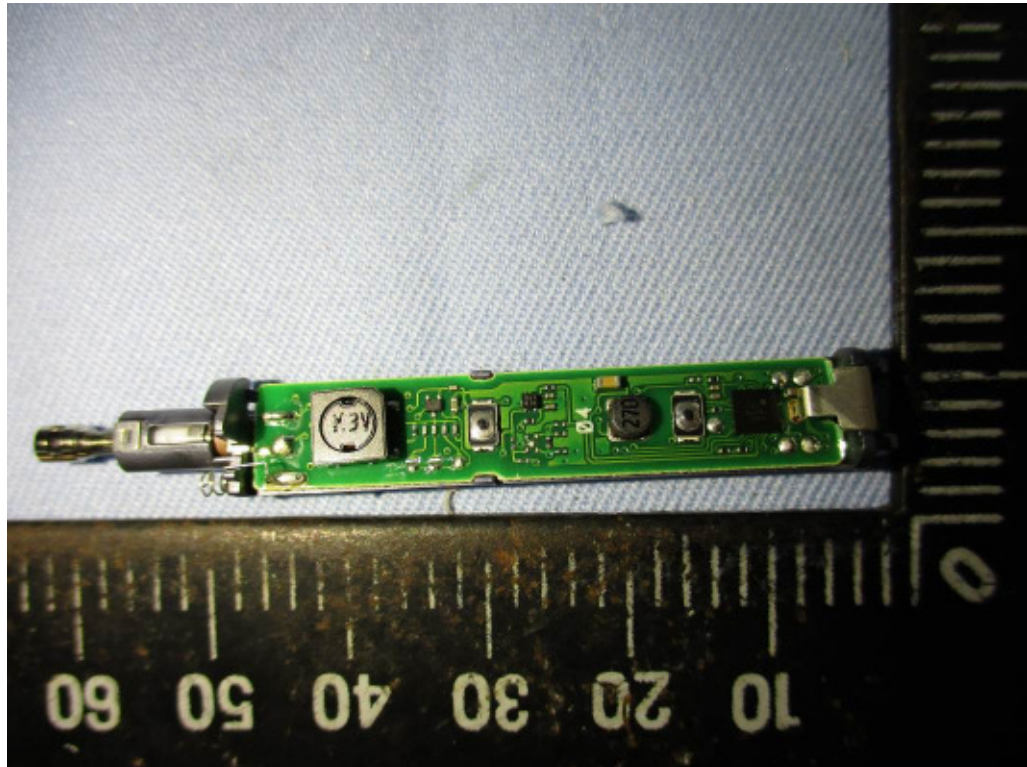
Product: HP Active Pen

Type Designation: HSTNN-W01P



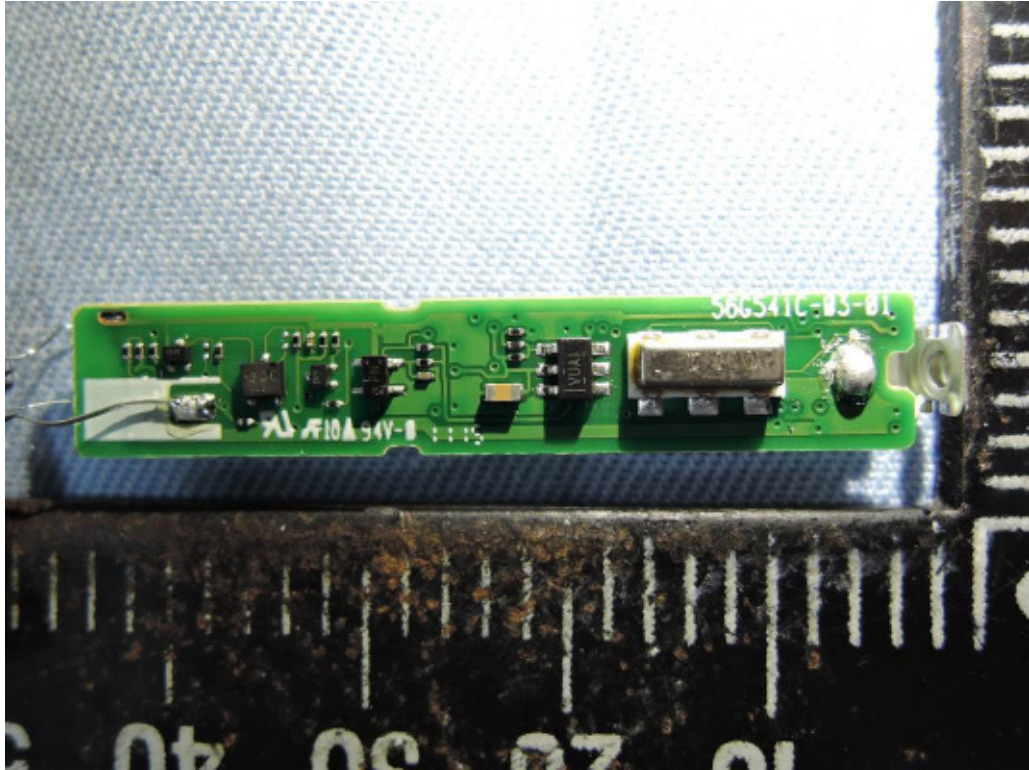
Product: HP Active Pen

Type Designation: HSTNN-W01P



Product: HP Active Pen

Type Designation: HSTNN-W01P



Product: HP Active Pen

Type Designation: HSTNN-W01P

