

## FCC Test Report

**Report No.:** RFBDBQ-WTW-P22030274-1

**FCC ID:** JUP-TD540

**Test Model:** TD540-W

**Series Model:** TD540 (Refer to item 3.1 for more details)

**Received Date:** Mar. 18, 2022

**Test Date:** Apr. 25, 2022

**Issued Date:** Jul. 01, 2022

**Applicant:** Trimble Inc.

**Address:** 935 Stewart Drive, Sunnyvale, CA 94085, USA.

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Lin Kou Laboratories

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

**Test Location:** No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan

**FCC Registration /  
Designation Number:** 281270 / TW0032



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### Release Control Record

Issue No.	Description	Date Issued
RFBDBQ-WTW-P22030274-1	Original Release	Jul. 01, 2022

## 1 Certificate of Conformity

**Product:** 10" Touch Display

**Brand:** Trimble

**Test Model:** TD540-W

**Series Model:** TD540 (Refer to item 3.1 for more details)

**Sample Status:** Engineering Sample

**Applicant:** Trimble Inc.

**Standards:** 47 CFR FCC Part 15, Subpart C (Section 15.247)  
47 CFR FCC Part 15, Subpart E (Section 15.407)  
47 CFR FCC Part 15, Subpart C (Section 15.225)  
47 CFR FCC Part 15, Subpart C (Section 15.215)  
ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

**Prepared by :** Gina Liu, **Date:** Jul. 01, 2022  
Gina Liu / Specialist

**Approved by :** Jeremy Lin, **Date:** Jul. 01, 2022  
Jeremy Lin / Project Engineer

## 2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247) 47 CFR FCC Part 15, Subpart E (Section 15.407) 47 CFR FCC Part 15, Subpart C (Section 15.225, 15.215)			
FCC Clause	Test Item	Result	Remarks
15.205 / 15.209 / 15.247(d) / 15.225 (d) / 15.407(b) (1/2/3/4(i/ii)/9)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -2.5 dB at 2483.50 MHz.

### Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. This report issued as a duplicate report to BV CPS report no. RFB DUM-WTW-P20100789E-3. The difference compared with original report is adding antenna (Part number: 02102140-06997-3) and product marking name (E300-5GB). The change is no effect on any test items, therefore no need to retest

### 2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.00 dB
	30 MHz ~ 200 MHz	2.91 dB
	200 MHz ~ 1000 MHz	2.92 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	1.76 dB
	18 GHz ~ 40 GHz	1.77 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

<b>Product</b>	10" Touch Display	
<b>Brand</b>	Trimble	
<b>Test Model</b>	TD540-W	
<b>Series Model</b>	TD540	
<b>Model Difference</b>	Refer to note	
<b>Status of EUT</b>	Engineering Sample	
<b>Power Supply Rating</b>	9~32Vdc	
<b>Modulation Type</b>	WLAN	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
	BT	GFSK, $\pi/4$ -DQPSK, 8DPSK
	NFC	ASK
<b>Data Rate</b>	WLAN	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0 Mbps 802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to 300.0 Mbps 802.11ac: up to 866.7 Mbps
	BT	1/2/3 Mbps
	NFC	Type A: 106 kbit/s Type B: 106 kbit/s Type F: 212 kbit/s, 424 kbit/s
<b>Operating Frequency</b>	WLAN	2412 ~ 2462 MHz 5180 ~ 5240 MHz, 5260 ~ 5320 MHz, 5500 ~ 5700 MHz, 5745 ~ 5825 MHz
	BT	2402 ~ 2480 MHz
	NFC	ASK
<b>Number of Channel</b>	WLAN	2412 ~ 2462 MHz 11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40) 5180 ~ 5240 MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5260 ~ 5320 MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5500 ~ 5700 MHz: 11 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 5 for 802.11n (HT40), 802.11ac (VHT40) 2 for 802.11ac (VHT80)

		5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)
	BT	79
	NFC	1
<b>Antenna Type</b>	Refer to Note as below	
<b>Antenna Connector</b>	Refer to Note as below	
<b>Accessory Device</b>	Refer to Note as below	
<b>Data Cable Supplied</b>	N/A	

Note:

1. All models are listed as below. Model TD540-W are the representative for final test.

Function	Model	
	TD540-W	TD540
Wireless	With	Without
Bluetooth	With	Without
NFC	With	With

Note: The difference between TD540 and TD540-W is software disable WIFI/BT.

2. The EUT contains certified WLAN+BT module (Brand: AzureWave, Model: AW-CM276NF, FCC ID: TLZ-CM276NF).

3. The antennas provided to the WLAN+BT module, please refer to the following table:

Brand	Model	Chain No.	Antenna Net. Gain (dBi)	Frequency Range (MHz)	Antenna Type	Connector Type	Cable Length
INPAQ	WA-M-LB-01-128	Chain 0(Aux)	2.68	2400-2500	PIFA	ipex(MHF)	145 mm
			4.19	5150-5850			
	WA-M-LB-02-262	Chain 1(Main)	2.44	2400-2500	PIFA	ipex(MHF)	
			4.08	5150-5850			

4. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
5. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

### 3.2 Description of Test Modes

#### For 2.4G

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437		

7 channels are provided for 802.11n (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	7	2442
4	2427	8	2447
5	2432	9	2452
6	2437		

#### For 5180 ~ 5240 MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
40	5200	48	5240

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
42	5210



**For 5260 ~ 5320 MHz**

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	60	5300
56	5280	64	5320

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270	62	5310

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
58	5290

**For 5500 ~ 5700 MHz**

11 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	124	5620
104	5520	128	5640
108	5540	132	5660
112	5560	136	5680
116	5580	140	5700
120	5600		

5 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
102	5510	126	5630
110	5550	134	5670
118	5590		

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530	122	5610

**For 5745 ~ 5825 MHz:**

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	161	5805
153	5765	165	5825
157	5785		

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
155	5775

79 channels are provided to this EUT:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

One channel was provided to this EUT:

Channel	Frequency (MHz)
1	13.56

### 3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to		Description
	RE $\geq$ 1G	RE<1G	
-	√	√	-

Where RE $\geq$ 1G: Radiated Emission above 1GHz & Bandedge Measurement RE<1G: Radiated Emission below 1GHz

**NOTE:** The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane**

#### **Radiated Emission Test (Above 1 GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Freq. Range (MHz)	Available Channel	Tested Channel	Modulation Technology
-	802.11n (HT20) + BT EDR + NFC	2412 ~ 2462	1, 6, 11	11 + 0 + 1	BPSK
		2402 ~ 2480	0, 39, 78		8DPSK
		13.56	1		ASK
-	802.11ac (VHT40) + BT EDR + NFC	5260 ~ 5320	54, 62	62 + 0 + 1	BPSK
		2402 ~ 2480	0, 39, 78		8DPSK
		13.56	1		FSK

#### **Radiated Emission Test (Below 1GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Freq. Range (MHz)	Available Channel	Tested Channel	Modulation Technology
-	802.11n (HT20) + BT EDR + NFC	2412 ~ 2462	1, 6, 11	11 + 0 + 1	BPSK
		2402 ~ 2480	0, 39, 78		8DPSK
		13.56	1		ASK
-	802.11ac (VHT40) + BT EDR + NFC	5260 ~ 5320	54, 62	62 + 0 + 1	BPSK
		2402 ~ 2480	0, 39, 78		8DPSK
		13.56	1		FSK

#### **Test Condition:**

Applicable to	Environmental Conditions	Input Power (System)	Tested by
RE $\geq$ 1G	23 deg. C, 67 % RH	12 Vdc	Wade Huang
RE<1G	23 deg. C, 67 % RH	12 Vdc	Wade Huang

### 3.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

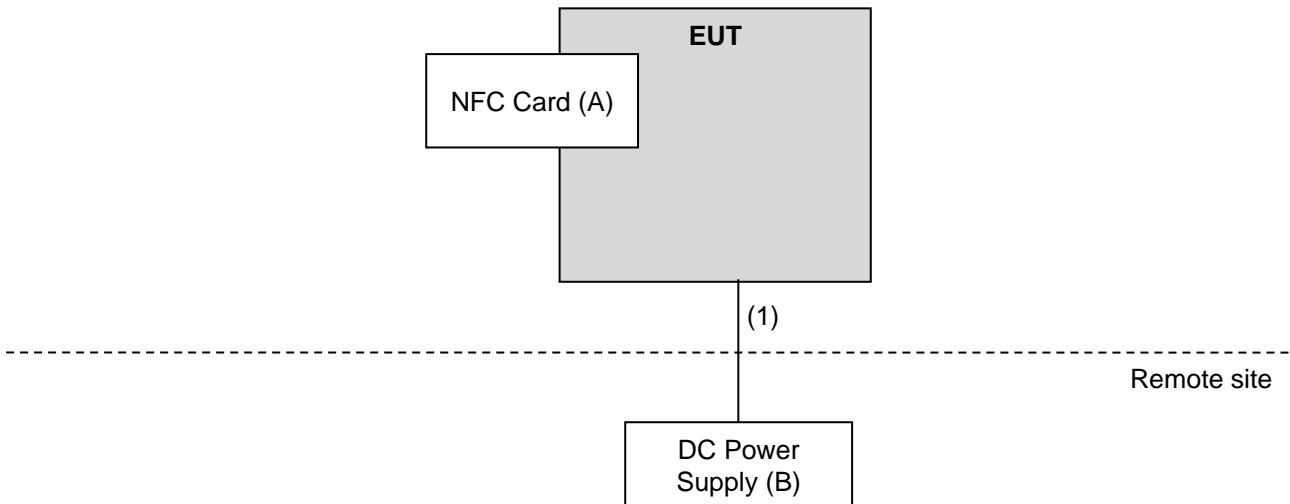
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	NFC Card	NA	NA	NA	NA	-
B.	DC Power Supply	NA	NA	NA	NA	-

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as communication partners to transfer data.

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Cable	1	1.0	N	0	Provided by client

#### 3.3.1 Configuration of System under Test



### 3.4 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

#### Test Standard:

**FCC Part 15, Subpart E (15.407)**

**FCC Part 15, Subpart C (15.247)**

**FCC Part 15, Subpart C (15.225)**

**FCC Part 15, Subpart C (15.215)**

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

#### References Test Guidance:

**KDB 558074 D01 15.247 Meas Guidance v05r02**

**KDB 414788 D01 Radiated Test Site v01r01**

All test items have been performed as a reference to the above KDB test guidance.

## 4 Test Types and Results

### 4.1 Radiated Emission and Bandedge Measurement

#### 4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F (kHz)	300
0.490 ~ 1.705	24000/F (kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

**Note:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

#### 4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver KEYSIGHT	N9038B	MY60180018	Feb. 18, 2022	Feb. 17, 2023
Spectrum Analyzer KEYSIGHT	N9020B	MY60110462	Dec. 21, 2021	Dec. 20, 2022
Test Receiver Rohde & Schwarz	ESR3	102579	Jul. 05, 2021	Jul. 04, 2022
Spectrum Analyzer KEYSIGHT	N9020B	MY60110462	Dec. 21, 2021	Dec. 20, 2022
BILOG Antenna SCHWARZBECK	VULB9168	995	Oct. 28, 2021	Oct. 27, 2022
HORN Antenna RF SPIN	DRH18-E	210104A18E	Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-404	Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9170	9170-995	Nov. 14, 2021	Nov. 13, 2022
Loop Antenna EMCI	EM-6879	269	Sep. 16, 2021	Sep. 15, 2022
Loop Antenna TESEQ	HLA 6121	45745	Jul. 21, 2021	Jul. 20, 2022
Preamplifier EMCI	EMC330N	980783	Jan. 17, 2022	Jan. 16, 2023
Preamplifier EMCI	EMC118A45SE	980810	Dec. 30, 2021	Dec. 29, 2022
Preamplifier EMCI	EMC184045SE	980787	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC104-SM-SM-(9000+2000+1000)	201230+ 201242+ 210101	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMCCFD400-NM-NM-(9000+300+500)	201252+ 201250+ 201245	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC101G-KM-KM-(5000+3000+2000)	201261+201258+ 201249	Jan. 17, 2022	Jan. 16, 2023
Software BV CPS	ADT_Radiated_V7.6.15.9.5	NA	NA	NA
Turn Table Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208675	NA	NA
Antenna Tower KaiTuo	NA	NA	NA	NA
Antenna Tower Controller KaiTuo	KT-2000	NA	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/MY55190007/MY55210005	Jul. 12, 2021	Jul. 11, 2022
Wideband Power Sensor KEYSIGHT	N1923A	MY58020002	Jan. 17, 2022	Jan. 16, 2023
Peak Power Analyzer KEYSIGHT	8990B	MY51000485	Jan. 18, 2022	Jan. 17, 2023
Spectrum Analyzer ROHDE & SCHWARZ	FSV40	100979	Mar. 25, 2022	Mar. 24, 2023

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. The test was performed in WM Chamber 7.

### 4.1.3 Test Procedures

#### For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

#### For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98%) or 10Hz (Duty cycle  $\geq 98\%$ ) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

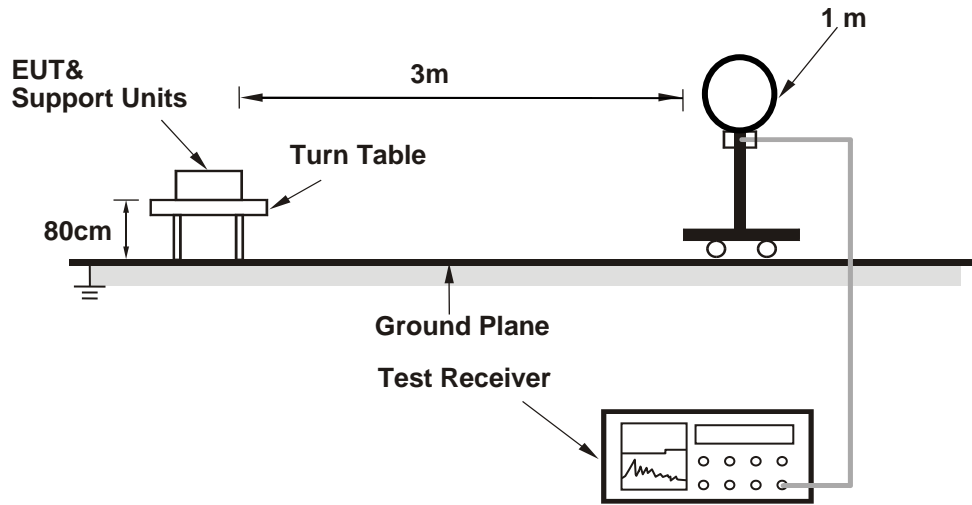
### 4.1.4 Deviation from Test Standard

No deviation.

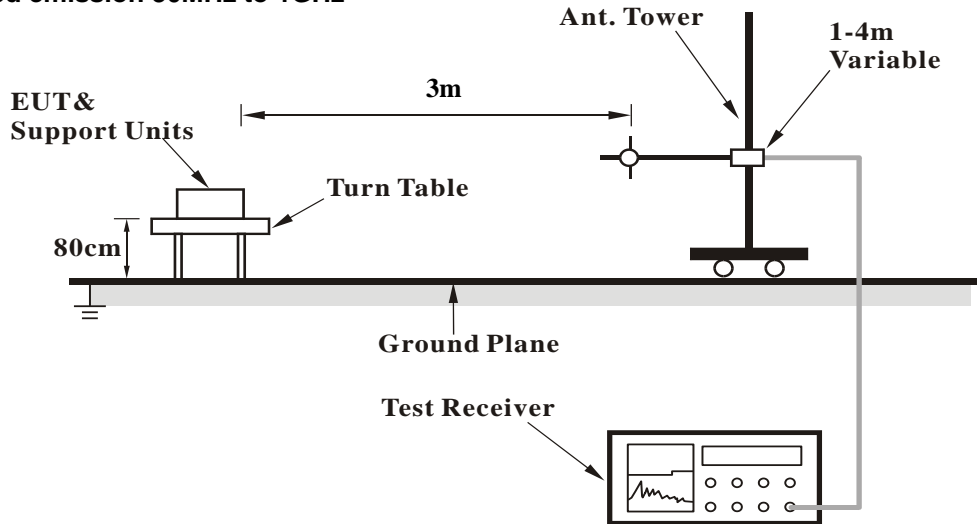


#### 4.1.5 Test Setup

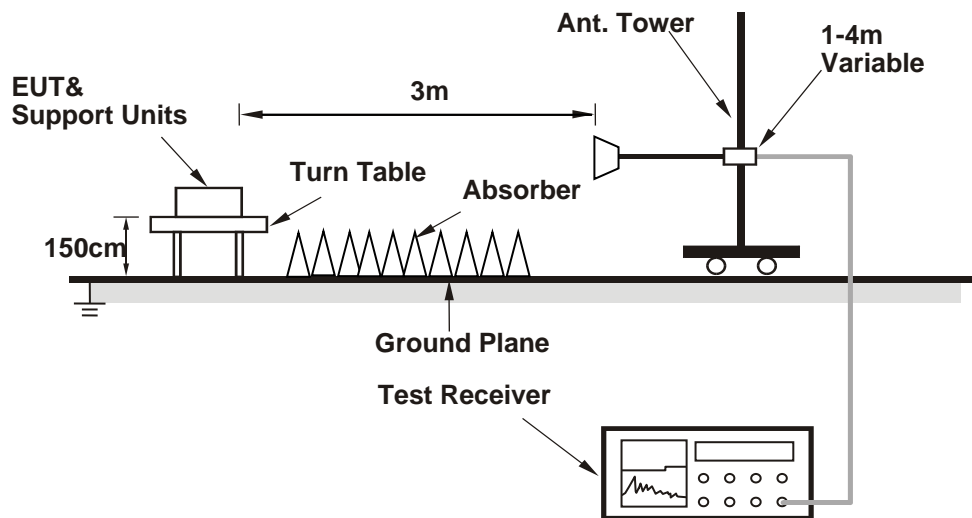
##### For Radiated emission below 30MHz



##### For Radiated emission 30MHz to 1GHz



### For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.1.6 EUT Operating Conditions

- a. Placed the EUT on the testing table.
- b. Set the EUT under transmission condition continuously at specific channel frequency.

#### 4.1.7 Test Results

Above 1GHz Data:

TX 802.11n (HT20) CH11 + BT CH 0 + NFC CH1

<b>Frequency Range</b>	1GHz ~ 25GHz	<b>Detector Function</b>	Peak (PK) Average (AV)
------------------------	--------------	--------------------------	---------------------------

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	58.9 PK	74.0	-15.1	2.50 H	49	26.2	32.7
2	2390.00	47.0 AV	54.0	-7.0	2.50 H	49	14.3	32.7
3	#2402.00	106.3 PK			2.50 H	49	73.5	32.8
4	#2402.00	73.2 AV			2.50 H	49	40.4	32.8
5	*2462.00	112.0 PK			2.40 H	60	79.4	32.6
6	*2462.00	102.5 AV			2.40 H	60	69.9	32.6
7	2483.50	64.9 PK	74.0	-9.1	2.40 H	60	32.2	32.7
<b>8</b>	<b>2483.50</b>	<b>51.5 AV</b>	<b>54.0</b>	<b>-2.5</b>	<b>2.40 H</b>	<b>60</b>	<b>18.8</b>	<b>32.7</b>
9	4804.00	47.4 PK	74.0	-26.6	1.44 H	22	46.1	1.3
10	4804.00	14.3 AV	54.0	-39.7	1.44 H	22	13.0	1.3
11	4924.00	45.0 PK	74.0	-29.0	1.66 H	40	43.5	1.5
12	4924.00	33.4 AV	54.0	-20.6	1.66 H	40	31.9	1.5

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	58.0 PK	74.0	-16.0	1.60 V	277	25.3	32.7
2	2390.00	46.1 AV	54.0	-7.9	1.60 V	277	13.4	32.7
3	#2402.00	100.0 PK			1.60 V	277	67.2	32.8
4	#2402.00	66.9 AV			1.60 V	277	34.1	32.8
5	*2462.00	108.6 PK			2.86 V	89	76.0	32.6
6	*2462.00	99.7 AV			2.86 V	89	67.1	32.6
7	2483.50	65.5 PK	74.0	-8.5	2.86 V	89	32.8	32.7
8	2483.50	51.0 AV	54.0	-3.0	2.86 V	89	18.3	32.7
9	4804.00	46.8 PK	74.0	-27.2	1.90 V	144	45.5	1.3
10	4804.00	13.7 AV	54.0	-40.3	1.90 V	144	12.4	1.3
11	4924.00	45.1 PK	74.0	-28.9	2.00 V	124	43.6	1.5
12	4924.00	33.3 AV	54.0	-20.7	2.00 V	124	31.8	1.5

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # " : The radiated frequency is out of the restricted band, the limit was restricted at the Conducted Out of Band Emissions.

TX 802.11ac (VHT40) CH62 + BT CH 0 + NFC CH1

<b>Frequency Range</b>	1GHz ~ 40GHz	<b>Detector Function</b>	Peak (PK) Average (AV)
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Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5310.00	101.5 PK			1.70 H	350	61.5	40.0
2	*5310.00	92.7 AV			1.70 H	350	52.7	40.0
3	5350.00	57.9 PK	74.0	-16.1	1.70 H	350	56.5	1.4
4	5350.00	47.6 AV	54.0	-6.4	1.70 H	350	46.2	1.4
5	10620.00	54.1 PK	74.0	-19.9	1.80 H	249	47.0	7.1
6	10620.00	42.8 AV	54.0	-11.2	1.80 H	249	35.7	7.1

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5310.00	101.3 PK			1.60 V	1	61.3	40.0
2	*5310.00	91.2 AV			1.60 V	1	51.2	40.0
3	5350.00	57.2 PK	74.0	-16.8	1.60 V	1	55.1	2.1
4	5350.00	46.0 AV	54.0	-8.0	1.60 V	1	43.9	2.1
5	10620.00	56.0 PK	74.0	-18.0	2.20 V	200	47.3	8.7
6	10620.00	45.0 AV	54.0	-9.0	2.20 V	200	36.3	8.7

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency, the limit was restricted at the RF Output Power.

TX 802.11ac (VHT40) CH62 + BT CH 0 + NFC CH1

<b>Frequency Range</b>	1GHz ~ 25GHz	<b>Detector Function</b>	Peak (PK) Average (AV)
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**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	57.9 PK	74.0	-16.1	2.40 H	59	26.0	31.9
2	2390.00	46.0 AV	54.0	-8.0	2.40 H	59	14.1	31.9
3	*2402.00	105.9 PK			2.40 H	59	73.9	32.0
4	*2402.00	72.8 AV			2.40 H	59	40.8	32.0
5	4804.00	48.0 PK	74.0	-26.0	1.48 H	210	45.9	2.1
6	4804.00	14.9 AV	54.0	-39.1	1.48 H	210	12.8	2.1

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	57.2 PK	74.0	-16.8	1.33 V	289	25.3	31.9
2	2390.00	45.1 AV	54.0	-8.9	1.33 V	289	13.2	31.9
3	*2402.00	99.4 PK			1.33 V	289	67.4	32.0
4	*2402.00	66.3 AV			1.33 V	289	34.3	32.0
5	4804.00	47.4 PK	74.0	-26.6	1.90 V	144	45.3	2.1
6	4804.00	14.3 AV	54.0	-39.7	1.90 V	144	12.2	2.1

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency, the limit was restricted at the RF Output Power.

Below 1GHz data

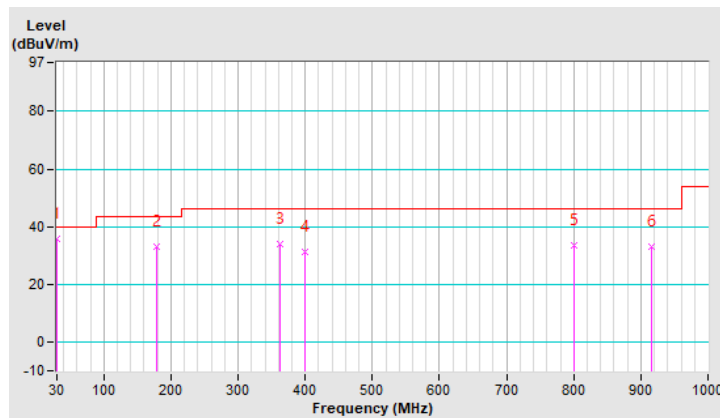
TX 802.11n (HT20) CH11 + BT CH 0 + NFC CH1

<b>Frequency Range</b>	30MHz ~ 1GHz	<b>Detector Function</b>	Quasi-Peak (QP)
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Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.67	36.0 QP	40.0	-4.0	1.00 H	103	50.8	-14.8
2	179.40	33.1 QP	43.5	-10.4	1.49 H	229	47.9	-14.8
3	362.74	34.1 QP	46.0	-11.9	1.00 H	229	45.5	-11.4
4	399.61	31.2 QP	46.0	-14.8	1.00 H	176	41.7	-10.5
5	800.26	33.6 QP	46.0	-12.4	1.00 H	61	36.3	-2.7
6	916.67	33.2 QP	46.0	-12.8	1.00 H	18	34.4	-1.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

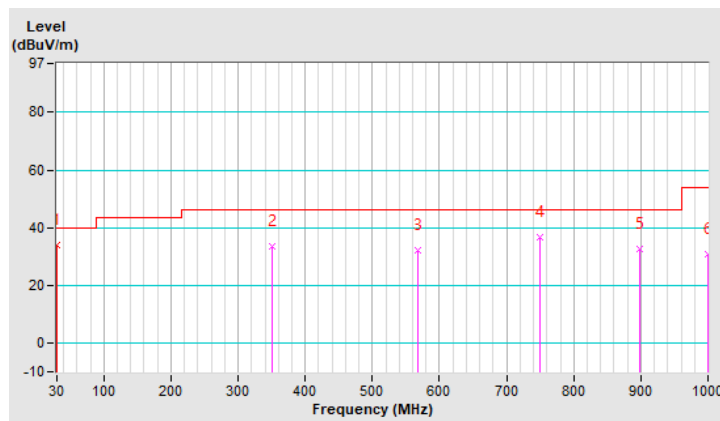


<b>Frequency Range</b>	30MHz ~ 1GHz	<b>Detector Function</b>	Quasi-Peak (QP)
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Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.68	34.2 QP	40.0	-5.8	1.00 V	260	49.0	-14.8
2	350.13	33.6 QP	46.0	-12.4	1.01 V	2	45.4	-11.8
3	567.44	32.2 QP	46.0	-13.8	1.01 V	340	39.0	-6.8
4	749.81	36.6 QP	46.0	-9.4	1.01 V	189	39.9	-3.3
5	898.24	32.5 QP	46.0	-13.5	1.51 V	196	34.3	-1.8
6	1000.00	30.7 QP	54.0	-23.3	1.51 V	2	31.1	-0.4

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



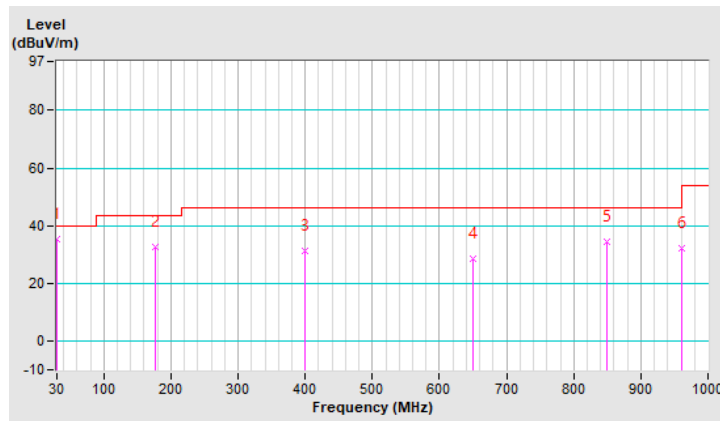
TX 802.11ac (VHT40) CH62 + BT CH 0 + NFC CH1

<b>Frequency Range</b>	30MHz ~ 1GHz	<b>Detector Function</b>	Quasi-Peak (QP)
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Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.07	35.2 QP	40.0	-4.8	2.00 H	106	49.8	-14.6
2	176.49	32.6 QP	43.5	-10.9	1.00 H	224	47.0	-14.4
3	399.61	31.2 QP	46.0	-14.8	1.00 H	176	41.7	-10.5
4	649.89	28.5 QP	46.0	-17.5	1.00 H	210	33.7	-5.2
5	849.73	34.4 QP	46.0	-11.6	1.00 H	44	36.5	-2.1
6	960.33	32.1 QP	54.0	-21.9	1.49 H	36	32.7	-0.6

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



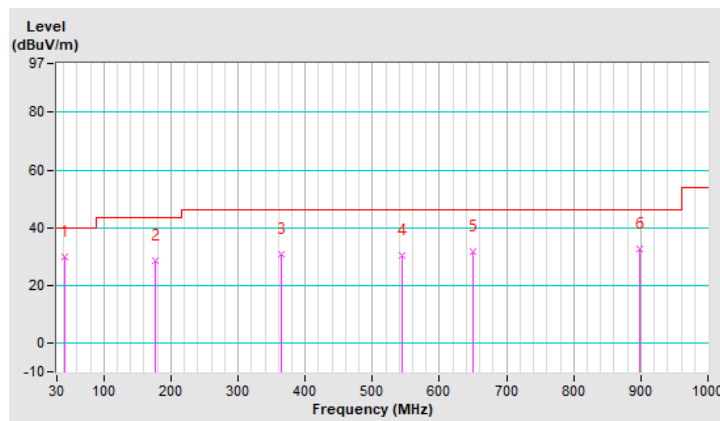


<b>Frequency Range</b>	30MHz ~ 1GHz	<b>Detector Function</b>	Quasi-Peak (QP)
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Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	41.64	30.0 QP	40.0	-10.0	2.01 V	210	43.5	-13.5
2	176.49	28.7 QP	43.5	-14.8	1.51 V	192	43.1	-14.4
3	363.71	30.9 QP	46.0	-15.1	1.01 V	231	42.3	-11.4
4	544.15	30.4 QP	46.0	-15.6	1.01 V	2	37.8	-7.4
5	649.89	31.6 QP	46.0	-14.4	1.01 V	2	36.8	-5.2
6	898.24	32.5 QP	46.0	-13.5	1.01 V	196	34.3	-1.8

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



## 5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

## Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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The address and road map of all our labs can be found in our web site also.

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