FCC/IC TEST REPORT

According to

CFR47 §15.225&RSS-210 Issue 9

Applicant	**: Mitac Digital Technology Corporation**
Address	**: No. 200, Wen Hwa 2nd Rd., Kuei Shan Dist. 33383 Taoyuan City,TAIWAN**
Manufacturer	**: Mitac Computer (Kunshan) Co., Ltd.**
Address	**: No. 269, 2nd Avenue, District A, Comprehensive Free Trade Zone, 215300 Kunshan, Jiangsu, PEOPLES REPUBLIC OF CHINA**
Equipment	**: Tablet**
Model No.	**: N642**
FCC ID	**: P4Q-N642-M1005**
IC	**: 2420C-N642-M1005**
Test Period	**: August 02, 2019~August 15, 2019**

■ The test result refers exclusively to the test presented test model / sample.

■ Without written approval of ***Cerpass Technology (Suzhou) Co., Ltd.***, the test report shall not be reproduced exc- ept in full.

■ The test report must not be used by the clients to claim product certification approval by any agency of the Government.

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.10 – 2013&FCC Part15.225&RSS-210 Issue 9** and the energy emitted by this equipment was ***passed.***

Approved by:

Miro Chueh
EMC/RF Manager

Laboratory Accreditation:
Cerpass Technology Corporation Test Laboratory

☐ **TAF LAB Code: 1439**

Cerpass Technology (SuZhou) Co., Ltd.

☒ **A2LA LAB Code: 4981.01**

Contents

History of this Test Report

Report No.	Version	Issue Date	Description
SEFF1907033-A	Rev 01	Aug. 16, 2019	Original

Summary of Test Results

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

FCC/IC Part Section(s)	Test Description	Test Result
FCC CFR Title 47 Part 15 Subpart C: 2019 Section 15.203 RSS-Gen Issue 4 November 2014 Section 8.3	Antenna Requirement	Compliance
FCC CFR Title 47 Part 15 Subpart C: 2019 Section 15.207 RSS-Gen Issue 4 November 2014 Section 8.8	Conducted Emission	Compliance
FCC CFR Title 47 Part 15 Subpart C: 2019 Section 15.209&15.225 RSS-210 Issue 9 August 2016 Annex B B.6 RSS-Gen Issue 4 November 2014 Section 8.9	Radiated Emission	Compliance
FCC CFR Title 47 Part 15 Subpart C: 2019 15.225(e) RSS-210 Issue 9 August 2016 Annex B B.6 RSS-Gen Issue 4 November 2014 Section 6.11	Frequency Stability	Compliance
FCC CFR Title 47 Part 15 Subpart C: 2019 15.215(c) RSS-Gen Issue 4 November 2014 Section 6.6	20dB Bandwidth	Compliance

1. General Information

1.1 Feature of Equipment under Test

Applicant		Mitac Digital Technology Corporation
Product Type		Tablet
Model No.		N642
Dimension		255.5 mm(L)×181.9 mm(W)×26.3 mm(H)
Power		Power over Ethernet (PoE+) (default) / 12V DC power supply (optional)
		Internal coin battery for real-time clock
Physical Interface		MicroSD slot
		Micro USB 2.0 (client); USB Type A 2.0 (host)
		RJ45 10/100Mbit Ethernet (supports PoE+, 802.3at)
		Dry contact x1 (RS-485 A+, B-, GND for access control)
		Built-in mic x2 (supports noise cancellation)
		Built-in 1.5W speaker x1
		Power DC jack
Power supply1	Model:	CVW120200
	Input:	100-240V~1.2A 50-60Hz 0.75A
	Output:	DC 12V --2.0A
Power supply2	Model:	POE-GTI-3556ND4
	Input:	100-240V
	Output:	DC 56V--0.625A

Note: The difference between tested model and series model was explained in the declaration letter.

1.2 Test Manner

a. During testing, the interface cables and equipment positions were varied according to ANSI C63.10.

b. The complete test system included Notebook and EUT for RF test.

1.3 Description of Test System

1.3.1 Support Equipment List and Details

Device	Manufacturer	Model No.	Serial No.
Notebook	Lenovo	G490	20320

1.3.2 External I/O Cable

Cable	Length (m)	Description
Micro USB 2.0	1	USB Port
USB Type A 2.0	1	USB Port
RJ45	1.5	Ethernet Port

1.4 General Information of Test

☐	Test Site	**Cerpass Technology Corporation Test Laboratory** Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881 Address: No.68-1, Shihbachongsi, Shihding Township, New Taipei City 223, Taiwan, R.O.C. Tel: +886-2-2663-8582
	TAF	1439
	FCC	TW1079, TW1061
	IC	4934E-1, 4934E-2
	VCCI	T-2205 for Telecommunication Test C-4663 for Conducted emission test R-4399, R-4218 for Radiated emission test G-812, G-813 for radiated disturbance above 1GHz
☒	Test Site	Cerpass Technology (Suzhou) Co.,Ltd Address: No.66,Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China Tel: +86-512-6917-5888 Fax: +86-512-6917-5666
	CNAS	L5515
	FCC	CN1243
	A2LA	4981.01
	IC	7290A-1, 7290A-2
	VCCI	T-1945 for Telecommunication Test C-12919 for Conducted emission test R-12670 for Radiated emission test G-227 for radiated disturbance above 1GHz

2. Measuring Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date.
EMI Test Receiver	R&S	ESCI	101183	2019.06.28	2020.06.27
Preamplifier	HP	8447F	3113A05915	2019.02.25	2020. 02.24
Preamplifier	FIELD	AFS44-00101800 -25-10P-44	1579008	2018.10.14	2019.10.13
Loop Antenna	R&S	HFH2-Z2	100150	2019.03.17	2020.03.16
Bilog Antenna	Sunol Science	JB1	A072414-1	2019.06.26	2020.06.26
Spectrum Analyzer	Agilent	N9010A	MY45118947	2018.10.11	2019.10.10
Temperature/ Humidity Meter	mingle	ETH529	N/A	2019.02.25	2020. 02.24
HIGH PASS FILTER	HP	84300-80038	002	2019.03.05	2020.03.04
SERIES POWER METER	ANRITSU	ML2495A	1224005	2019.03.05	2020.03.04
POWER SENSOR	ANRITSU	MA2411B	1207295	2019.03.05	2020.03.04

3. Antenna Requirements

3.1 Applicable Standard

For intentional device, according to FCC 47 CFR Section 15.203 and and RSS-GEN Section 8.3, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

3.2 Antenna Construction

The EUT has a IFA antenna arrangement and antenna gain is -5.14 dBi, which was permanently attached, fulfill the requirement of this section, please refer to the EUT photos.

4. Test of AC Power Line Conducted Emission

4.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.10-2013 Section 6.2. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 6.2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

4.2 Test Procedures

a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.

b. Connect EUT to the power mains through a line impedance stabilization network (LISN).

c. All the support units are connecting to the other LISN.

d. The LISN provides 50 ohm coupling impedance for the measuring instrument.

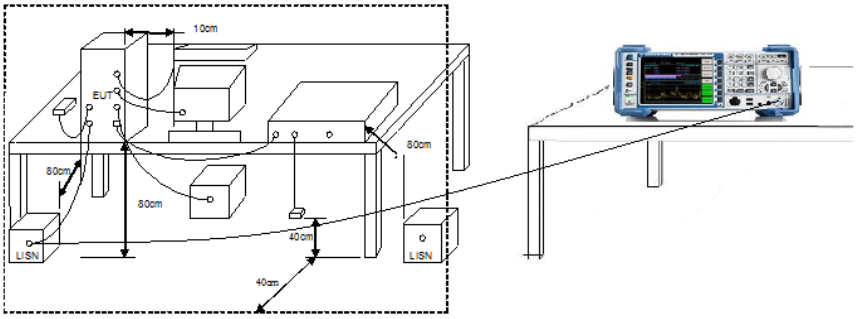
e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.

f. Both sides of AC line were checked for maximum conducted emission.

g. The frequency range from 150 kHz to 30 MHz was searched.

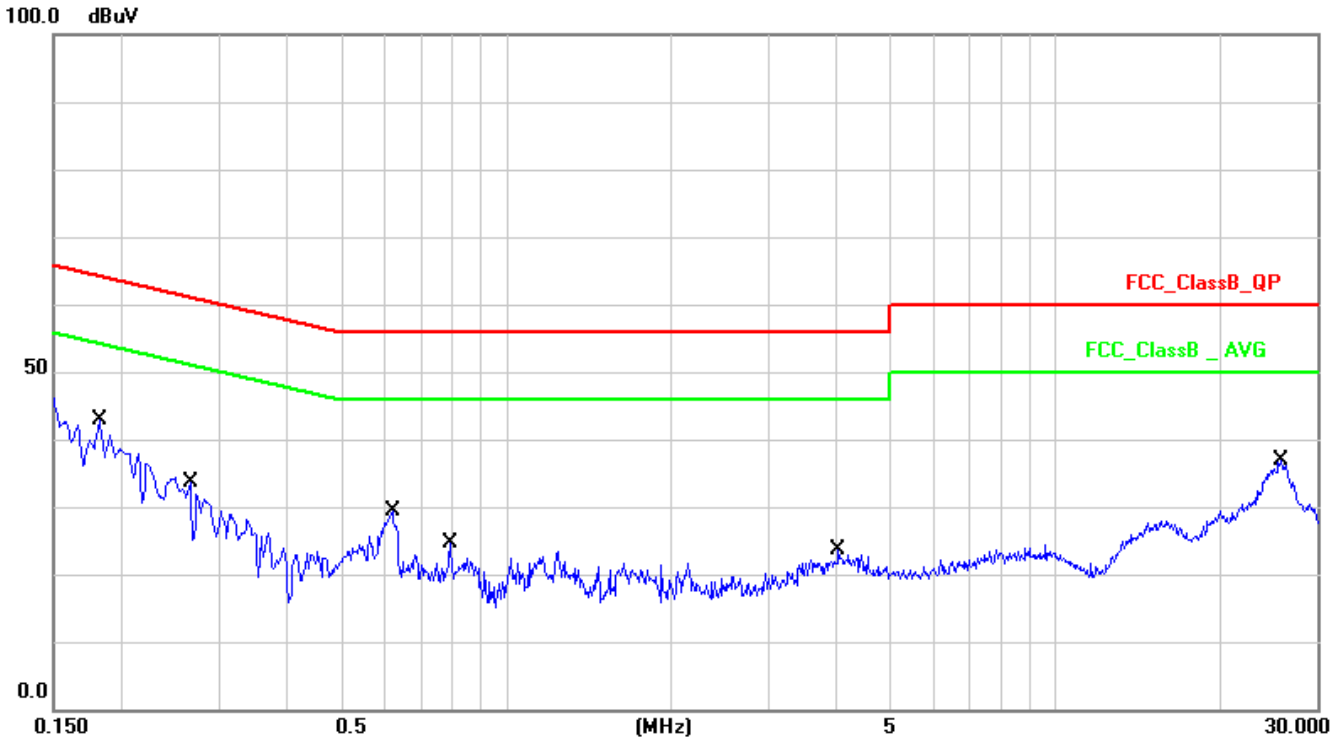
h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

4.3 Test Setup



4.4 Test Result

Test Standard:	**FCC_ClassB_QP**	**Probe:**	**L1**
Test item:	**Conduction Emission**	**Test Time:**	**2019/8/1310:38:56**
Applicant:	**Mitac Digital Technology Company**	**Power Rating:**	**AC 120V/60Hz**
Product:	**Tablet**	**Temp.(C)/Hum.(%)/Air p.(hpa):**	**26(℃)/60%/1000hpa**
Model No.:	**N642**	**Test Engineer:**	**Chris**
Test Mode:	**RFID+NFC**		
Remark:	**Adapter Power**		

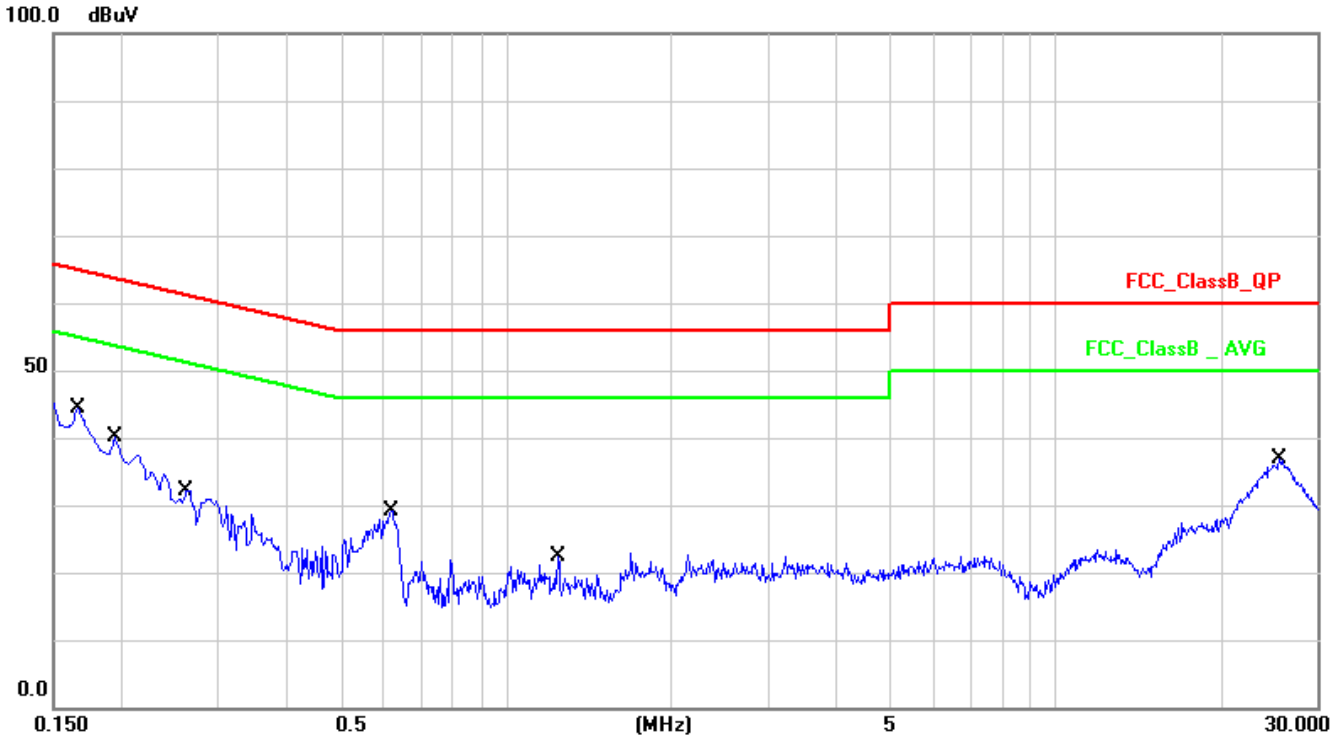


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1819	10.13	26.80	36.93	64.39	-27.46	QP
2	0.1819	10.13	10.70	20.83	54.39	-33.56	AVG
3	0.2660	10.14	19.33	29.47	61.24	-31.77	QP
4	0.2660	10.14	6.46	16.60	51.24	-34.64	AVG
5	0.6220	10.15	16.98	27.13	56.00	-28.87	QP
6	0.6220	10.15	8.81	18.96	46.00	-27.04	AVG
7	0.7940	10.16	9.39	19.55	56.00	-36.45	QP
8	0.7940	10.16	2.93	13.09	46.00	-32.91	AVG
9	4.0460	10.23	6.78	17.01	56.00	-38.99	QP

10	4.0460	10.23	1.08	11.31	46.00	-34.69	AVG
11	25.8380	10.45	20.12	30.57	60.00	-29.43	QP
12	25.8380	10.45	10.08	20.53	50.00	-29.47	AVG

Note: Level = Reading + Factor
Margin = Level – Limit
Factor = (LISN or ISN or PLC or current probe) Factor + Cable Loss + Attenuator

Test Standard:	**FCC_ClassB_QP**	**Probe:**	**N**
Test item:	**Conduction Emission**	**Test Time:**	**2019/8/1310:35:48**
Applicant:	**Mitac Digital Technology Company**	**Power Rating:**	**AC 120V/60Hz**
Product:	**Tablet**	**Temp.(C)/Hum.(%)/Air p.(hpa):**	**26(℃)/60%/1000hpa**
Model No.:	**N642**	**Test Engineer:**	**Chris**
Test Mode:	**RFID+NFC**		
Remark:	**Adapter Power**		

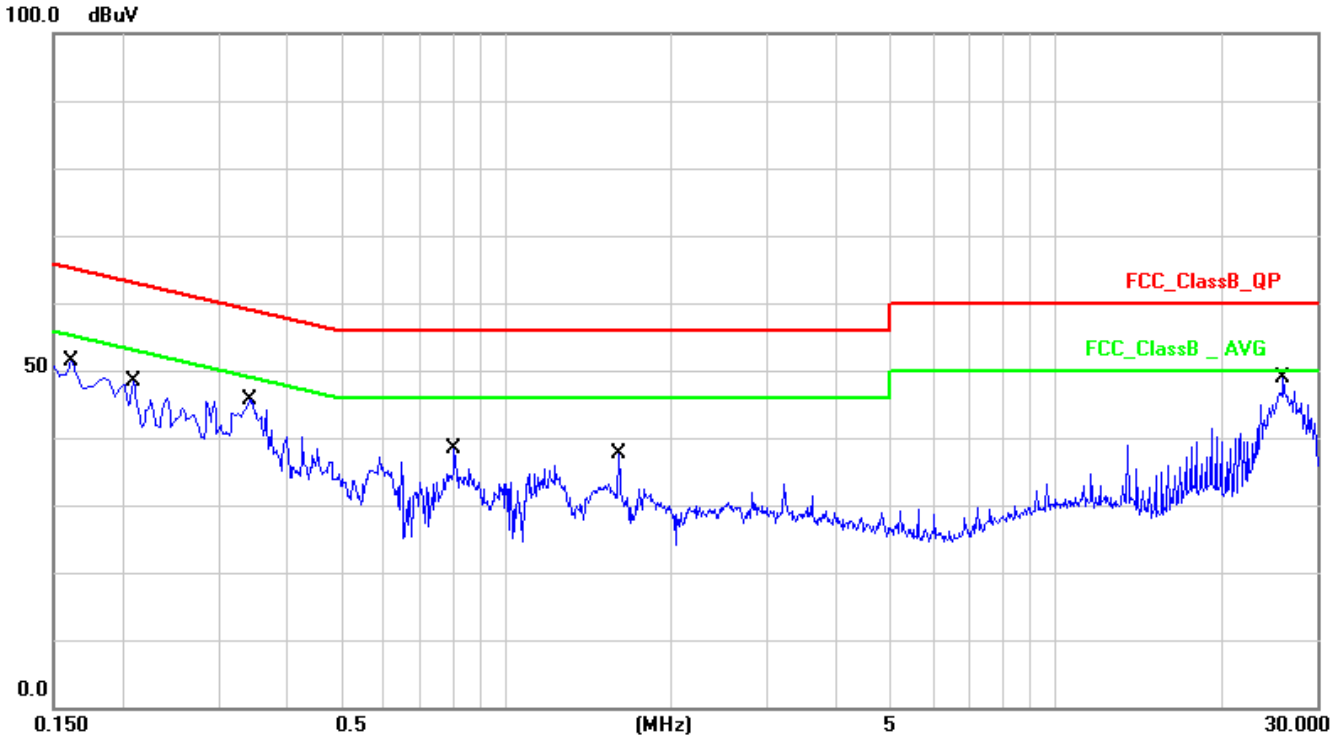


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1660	10.15	28.96	39.11	65.15	-26.04	QP
2	0.1660	10.15	11.32	21.47	55.15	-33.68	AVG
3	0.1940	10.14	26.23	36.37	63.86	-27.49	QP
4	0.1940	10.14	9.87	20.01	53.86	-33.85	AVG
5	0.2630	10.14	19.46	29.60	61.33	-31.73	QP
6	0.2630	10.14	4.33	14.47	51.33	-36.86	AVG
7	0.6180	10.16	16.58	26.74	56.00	-29.26	QP
8	0.6180	10.16	8.21	18.37	46.00	-27.63	AVG

9	1.2460	10.19	6.12	16.31	56.00	-39.69	QP
10	1.2460	10.19	0.74	10.93	46.00	-35.07	AVG
11	25.6420	10.36	20.49	30.85	60.00	-29.15	QP
12	25.6420	10.36	11.25	21.61	50.00	-28.39	AVG

Note: Level = Reading + Factor
Margin = Level – Limit
Factor = (LISN or ISN or PLC or current probe) Factor + Cable Loss + Attenuator

Test Standard:	**FCC_ClassB_QP**	**Probe:**	**L1**
Test item:	**Conduction Emission**	**Test Time:**	**2019/8/1310:43:47**
Applicant:	**Mitac Digital Technology Company**	**Power Rating:**	**AC 120V/60Hz**
Product:	**Tablet**	**Temp.(C)/Hum.(%)/Air p.(hpa):**	**26(℃)/60%/1000hpa**
Model No.:	**N642**	**Test Engineer:**	**Chris**
Test Mode:	**RFID+NFC**		
Remark:	**POE Power**		

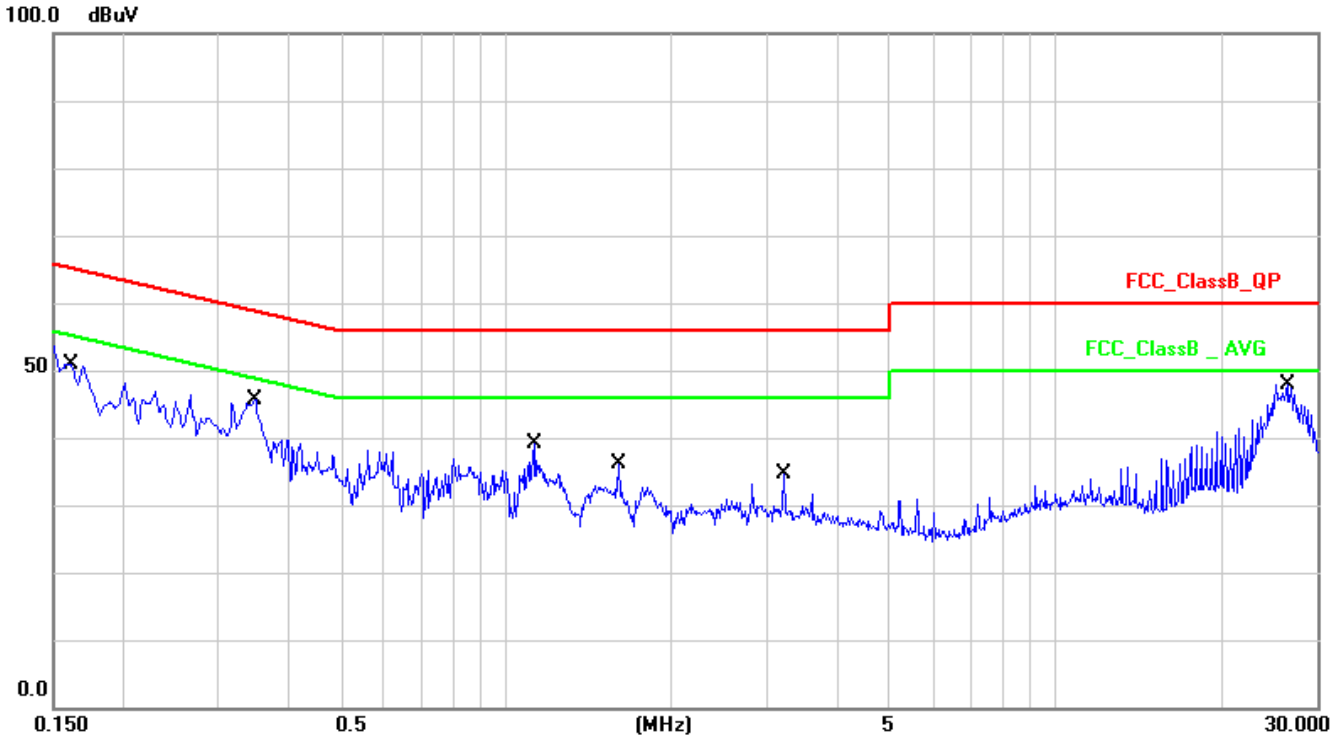


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1620	10.15	35.77	45.92	65.36	-19.44	QP
2	0.1620	10.15	17.81	27.96	55.36	-27.40	AVG
3	0.2100	10.13	30.86	40.99	63.20	-22.21	QP
4	0.2100	10.13	14.28	24.41	53.20	-28.79	AVG
5	0.3420	10.14	33.49	43.63	59.15	-15.52	QP
6	0.3420	10.14	26.18	36.32	49.15	-12.83	AVG
7	0.8059	10.16	24.79	34.95	56.00	-21.05	QP
8	0.8059	10.16	18.50	28.66	46.00	-17.34	AVG
9	1.6100	10.18	22.79	32.97	56.00	-23.03	QP

10	1.6100	10.18	18.22	28.40	46.00	-17.60	AVG
11	26.1340	10.45	31.43	41.88	60.00	-18.12	QP
12	26.1340	10.45	25.30	35.75	50.00	-14.25	AVG

Note: Level = Reading + Factor
Margin = Level – Limit
Factor = (LISN or ISN or PLC or current probe) Factor + Cable Loss + Attenuator

Test Standard:	**FCC_ClassB_QP**	**Probe:**	**N**
Test item:	**Conduction Emission**	**Test Time:**	**2019/8/1310:47:01**
Applicant:	**Mitac Digital Technology Company**	**Power Rating:**	**AC 120V/60Hz**
Product:	**Tablet**	**Temp.(C)/Hum.(%)/Air p.(hpa):**	**26(℃)/60%/1000hpa**
Model No.:	**N642**	**Test Engineer:**	**Chris**
Test Mode:	**RFID+NFC**		
Remark:	**POE Power**		



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1620	10.15	35.66	45.81	65.36	-19.55	QP
2	0.1620	10.15	17.67	27.82	55.36	-27.54	AVG
3	0.3500	10.14	32.43	42.57	58.96	-16.39	QP
4	0.3500	10.14	24.12	34.26	48.96	-14.70	AVG
5	1.1300	10.19	21.88	32.07	56.00	-23.93	QP
6	1.1300	10.19	14.14	24.33	46.00	-21.67	AVG
7	1.6100	10.19	20.17	30.36	56.00	-25.64	QP
8	1.6100	10.19	14.99	25.18	46.00	-20.82	AVG

9	3.2139	10.22	17.86	28.08	56.00	-27.92	QP
10	3.2139	10.22	13.51	23.73	46.00	-22.27	AVG
11	26.4860	10.35	31.29	41.64	60.00	-18.36	QP
12	26.4860	10.35	25.60	35.95	50.00	-14.05	AVG

Note: Level = Reading + Factor
Margin = Level – Limit
Factor = (LISN or ISN or PLC or current probe) Factor + Cable Loss + Attenuator

5. Test of Spurious Emission (Radiated)

5.1 Test Limit

As per FCC Part 15.225

(a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110–14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

5.2 Test Procedures

a. The EUT was placed on a rotatable table top 0.8 meter for frequency below 1GHz and 1.5meter for frequency above 1GHz above ground.

b. The EUT was set 3 meters from the emission receiving antenna which was mounted on the top of a variable height antenna tower.

c. The table was rotated 360 degrees to determine the position of the highest radiation.

d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.

e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.

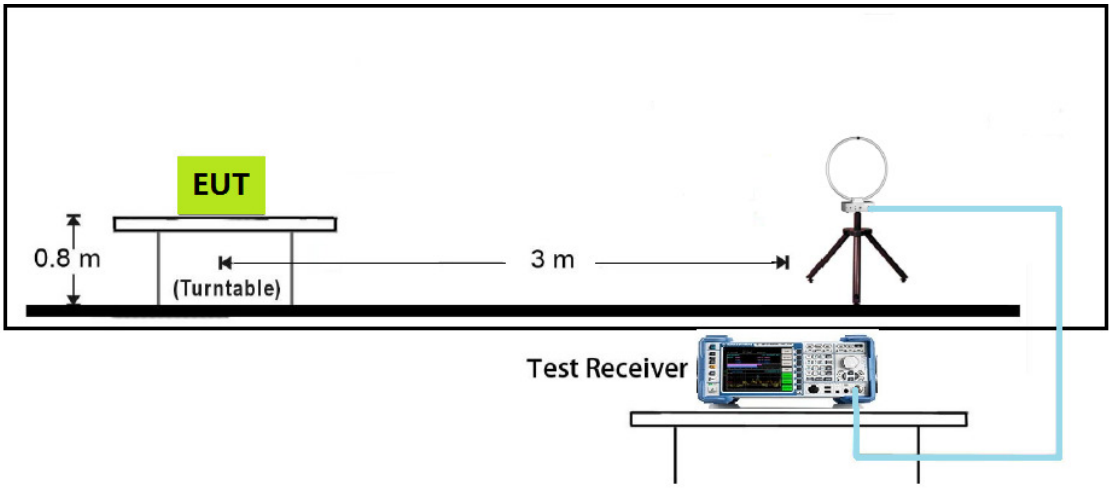
f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.

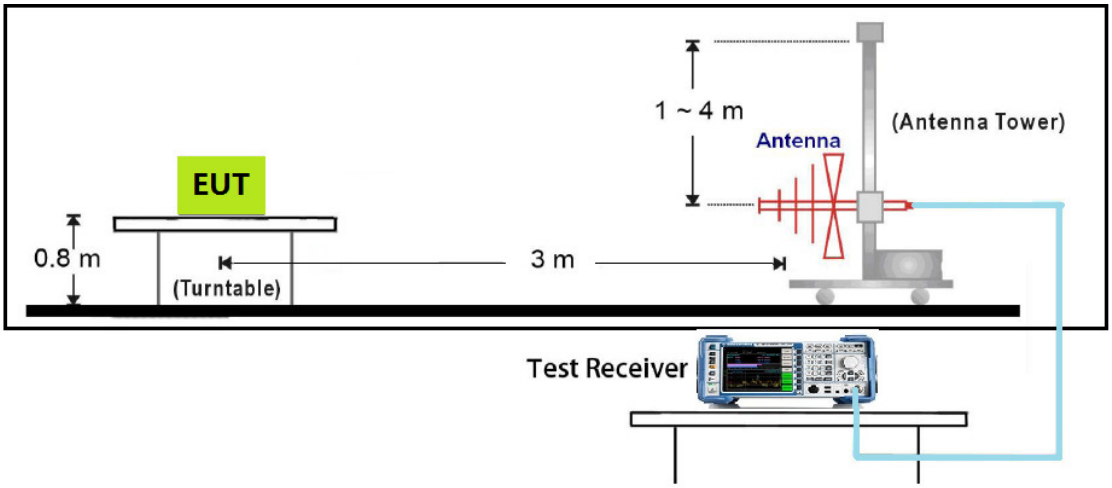
h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

5.3 Test Setup

9KHz~30MHz Test Setup



30MHz~1GHz Test Setup



5.4 Test Result

Radiated Emission 9KHz~30MHz(Adapter Power):

Indicated		Detector PK/QP/AV.	Correction Factor			Corrected Amplitude (dBμV/m) @3m	FCC Part 15.225/15.209	
Frequency (MHz)	Maximum Reading (dBuV)		Ant. Factor (dB/m)	Cable Loss (dB)	Amp. Gain (dB)		Limit (dBμV/m) @3m	Margin (dB)
0.97	40.62	QP	39.58	3.12	25	58.32	67.88	-9.56
13.35	55.17	QP	40.55	3.46	25	74.18	80.5	-6.32
13.45	59.67	QP	40.57	3.47	25	78.71	90.5	-11.79
13.66	62.03	QP	40.60	3.47	25	81.10	90.5	-9.40
13.78	59.87	QP	40.61	3.48	25	78.96	80.5	-1.54
13.56	75.35	QP	40.78	3.47	25	94.60	124	-29.40

Note:
Corrected Amplitude = Corrected Factor + Reading
Corrected Factor = Antenna factor (Rx) + cable loss – amplifier factor
Margin = Corr. Amplitude - Limit

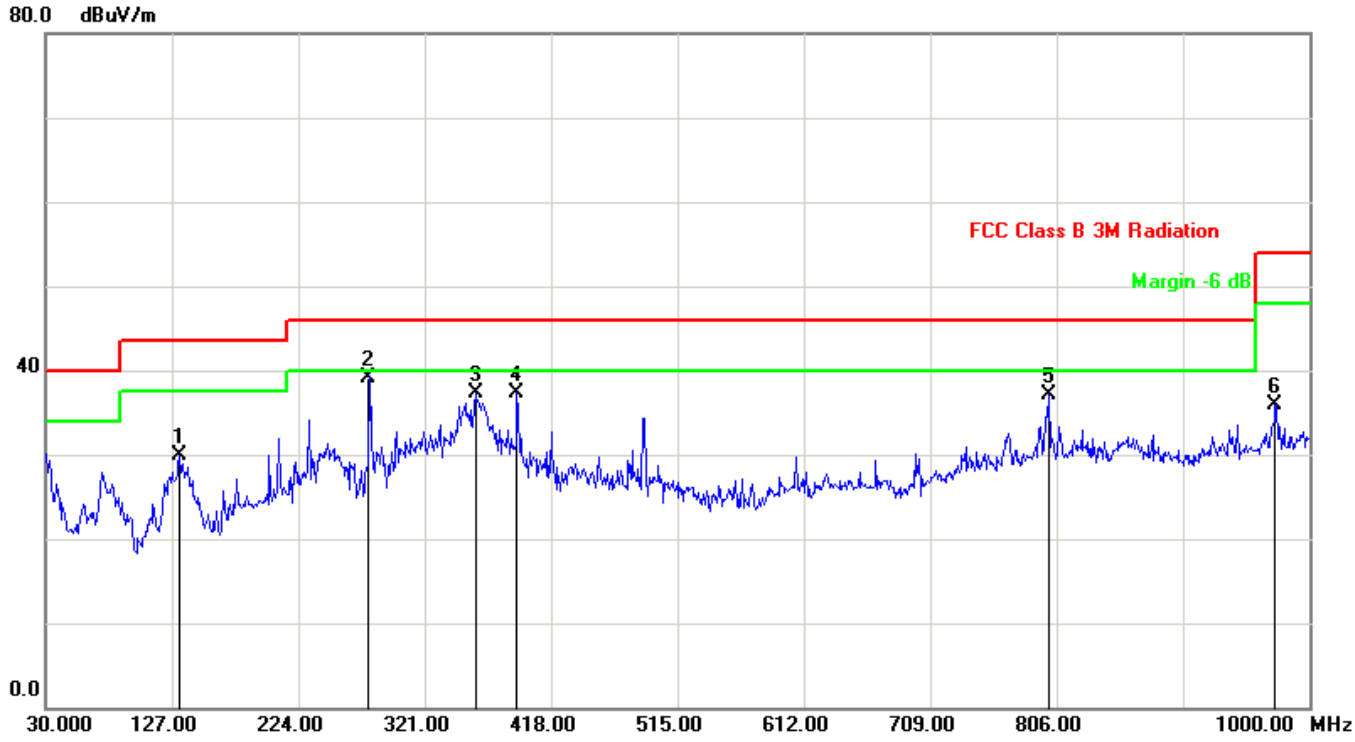
Radiated Emission 9KHz~30MHz(POE Power):

Indicated		Detector PK/QP/AV	Correction Factor			Corrected Amplitude (dBμV/m) @3m	FCC Part 15.225/15.209	
Frequency (MHz)	Maximum Reading (dBuV)		Ant. Factor (dB/m)	Cable Loss (dB)	Amp. Gain (dB)		Limit (dBμV/m) @3m	Margin (dB)
1.27	39.06	QP	39.59	3.19	25	56.84	65.53	-8.69
13.35	55.34	QP	40.55	3.46	25	74.35	80.5	-6.15
13.45	61.01	QP	40.57	3.47	25	80.05	90.5	-10.45
13.66	62.55	QP	40.60	3.47	25	81.62	90.5	-8.88
13.78	60.06	QP	40.61	3.48	25	79.15	80.5	-1.35
13.56	75.37	QP	40.78	3.47	25	94.62	124	-29.38

Note:
Corrected Amplitude = Corrected Factor + Reading
Corrected Factor = Antenna factor (Rx) + cable loss – amplifier factor
Margin = Corr. Amplitude - Limit

Radiated Emission 30MHz~1GHz:

Test Distance:	**3M**		
Test Standard:	**FCC Class B 3M Radiation**	**Ant. Polarization:**	**Horizontal**
Test item:	**Radiation Emission**	**Test Time:**	**2019-8-1516:29:51**
Applicant:	**Mitac Digital Technology Company**	**Power Rating:**	**AC 120V/60Hz**
Product:	**Tablet**	**Temp.(C)/Hum.(%)/Air p.(hpa):**	**26(℃)/60%/983hpa**
Model No.:	**N642**	**Test Engineer:**	**Chris**
Test Mode:	**RFID+NFC**		
Remark:	**Adapter Power**		

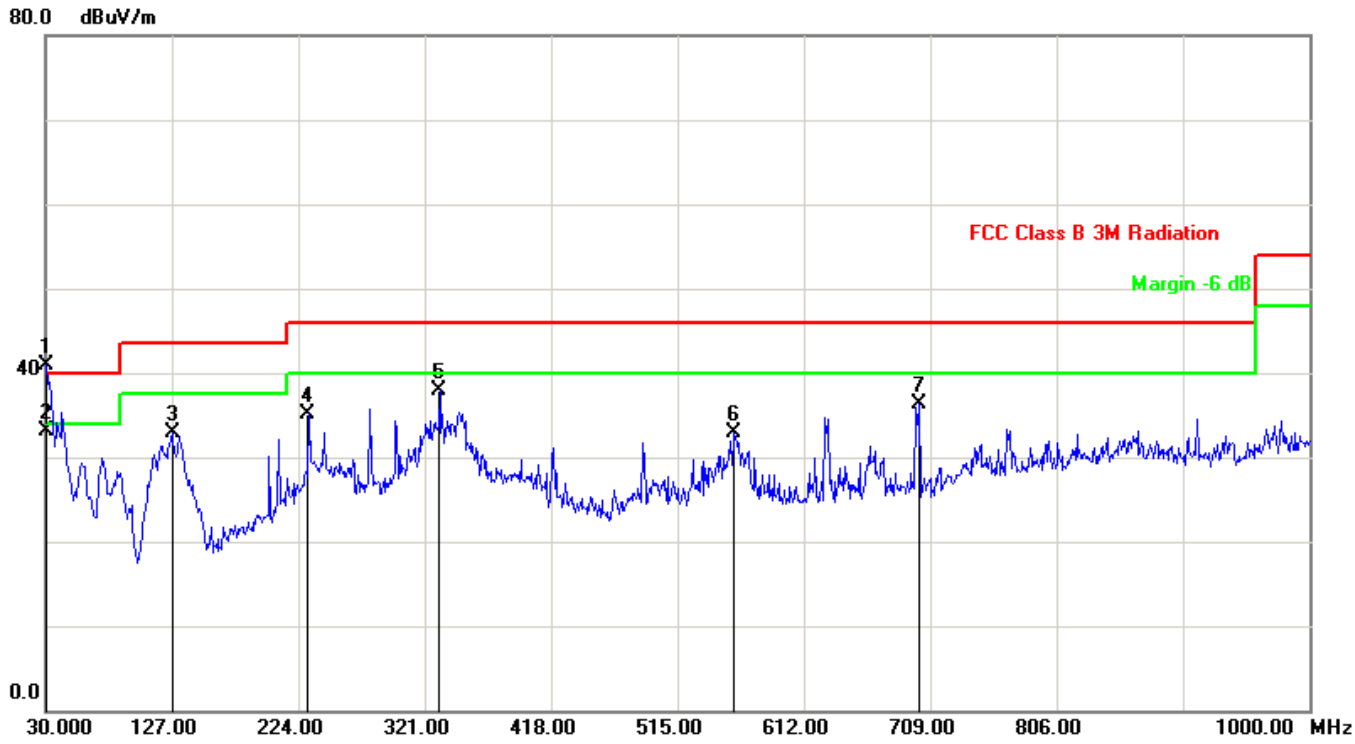


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	132.8198	-12.07	41.92	29.85	43.50	-13.65	peak
2	278.3199	-8.38	47.58	39.20	46.00	-6.80	peak
3	359.8000	-7.77	45.04	37.27	46.00	-8.73	peak
4	391.8100	-7.20	44.43	37.23	46.00	-8.77	peak
5	800.1798	1.82	35.23	37.05	46.00	-8.95	peak
6	973.8098	3.50	32.43	35.93	54.00	-18.07	peak

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Distance:	**3M**		
Test Standard:	**FCC Class B 3M Radiation**	**Ant. Polarization:**	**Vertical**
Test item:	**Radiation Emission**	**Test Time:**	**2019-8-1516:32:15**
Applicant:	**Mitac Digital Technology Company**	**Power Rating:**	**AC 120V/60Hz**
Product:	**Tablet**	**Temp.(C)/Hum.(%)/Air p.(hpa):**	**26(℃)/60%/983hpa**
Model No.:	**N642**	**Test Engineer:**	**Chris**
Test Mode:	**RFID+NFC**		
Remark:	**Adapter Power**		

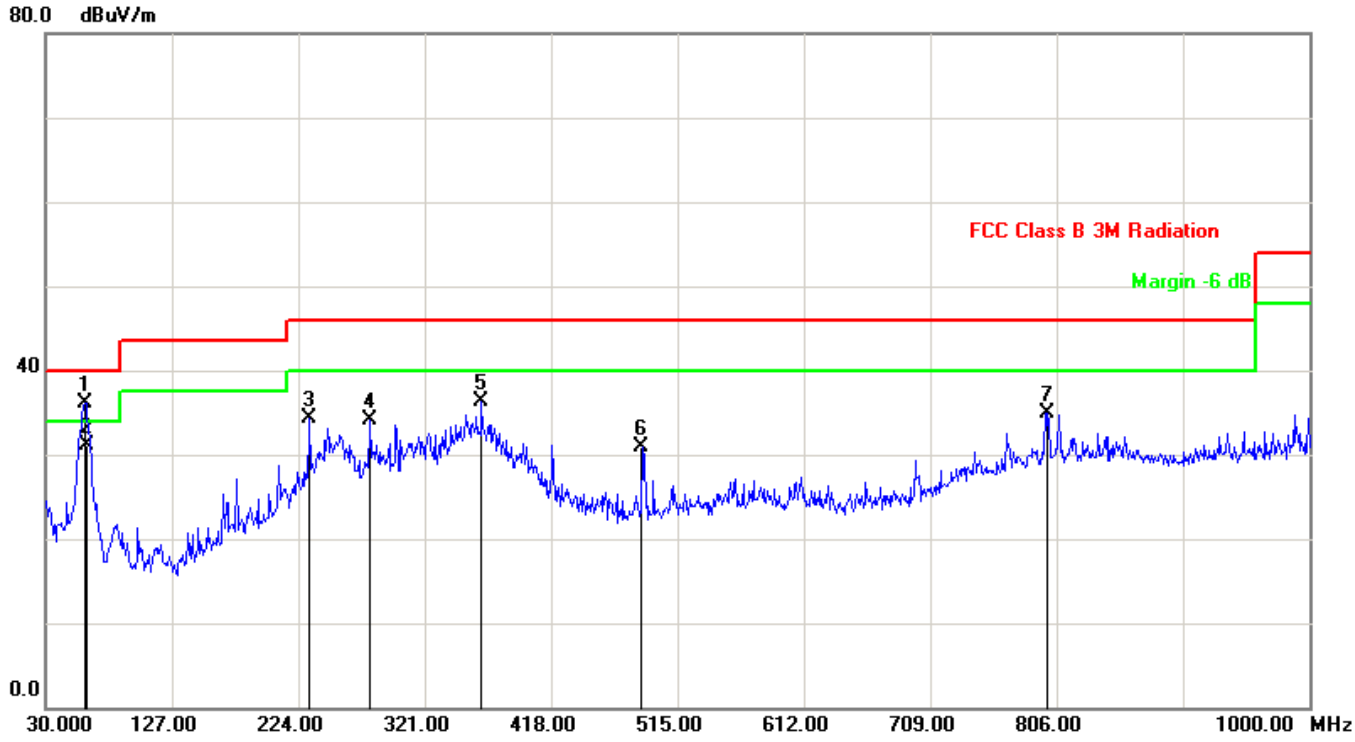


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	30.0000	-4.25	45.22	40.97	40.00	0.97	peak
2	30.2500	-4.36	37.55	33.19	40.00	-6.81	QP
3	127.0000	-12.12	45.09	32.97	43.50	-10.53	peak
4	231.7598	-10.96	46.03	35.07	46.00	-10.93	peak
5	332.6399	-7.91	45.80	37.89	46.00	-8.11	peak
6	558.6499	-3.97	36.80	32.83	46.00	-13.17	peak
7	700.2698	-2.00	38.38	36.38	46.00	-9.62	peak

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Distance:	**3M**		
Test Standard:	**FCC Class B 3M Radiation**	**Ant. Polarization:**	**Horizontal**
Test item:	**Radiation Emission**	**Test Time:**	**2019-8-1520:03:31**
Applicant:	**Mitac Digital Technology Company**	**Power Rating:**	**AC 120V/60Hz**
Product:	**Tablet**	**Temp.(C)/Hum.(%)/Air p.(hpa):**	**26(℃)/60%/983hpa**
Model No.:	**N642**	**Test Engineer:**	**Chris**
Test Mode:	**RFID+NFC**		
Remark:	**POE Power**		

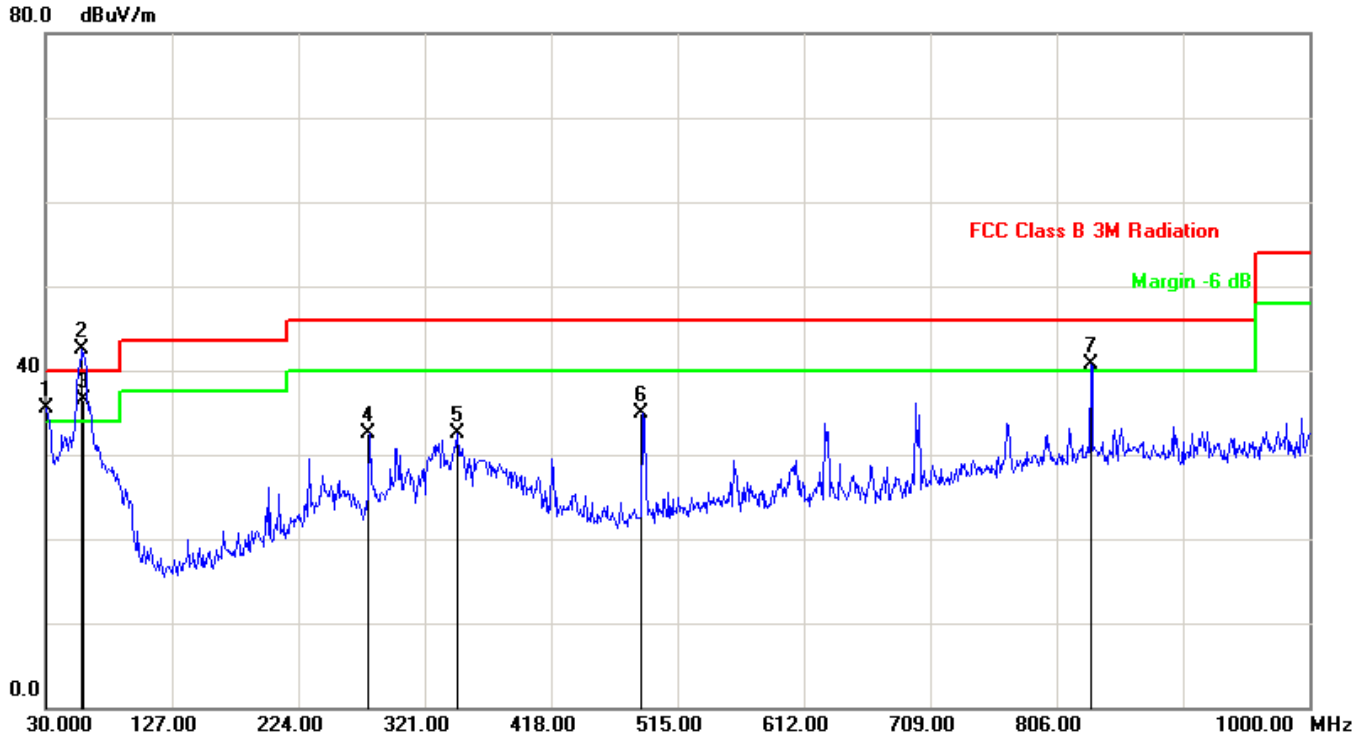


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	61.0399	-15.03	51.09	36.06	40.00	-3.94	peak
2	61.5200	-15.07	46.25	31.18	40.00	-8.82	QP
3	232.7299	-10.91	45.31	34.40	46.00	-11.60	peak
4	279.2900	-8.29	42.37	34.08	46.00	-11.92	peak
5	364.6499	-7.69	44.07	36.38	46.00	-9.62	peak
6	487.8399	-5.49	36.32	30.83	46.00	-15.17	peak
7	799.2100	1.81	33.04	34.85	46.00	-11.15	peak

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Distance:	**3M**		
Test Standard:	**FCC Class B 3M Radiation**	**Ant. Polarization:**	**Vertical**
Test item:	**Radiation Emission**	**Test Time:**	**2019-8-1519:54:37**
Applicant:	**Mitac Digital Technology Company**	**Power Rating:**	**AC 120V/60Hz**
Product:	**Tablet**	**Temp.(C)/Hum.(%)/Air p.(hpa):**	**26(℃)/60%/983hpa**
Model No.:	**N642**	**Test Engineer:**	**Chris**
Test Mode:	**RFID+NFC**		
Remark:	**POE Power**		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	30.0000	-4.25	39.79	35.54	40.00	-4.46	peak
2	58.1300	-14.55	57.11	42.56	40.00	2.56	peak
3	58.6200	-14.65	51.24	36.59	40.00	-3.41	QP
4	278.3199	-8.38	40.86	32.48	46.00	-13.52	peak
5	346.2200	-7.94	40.50	32.56	46.00	-13.44	peak
6	487.8399	-5.49	40.38	34.89	46.00	-11.11	peak
7	832.1900	2.21	38.55	40.76	46.00	-5.24	peak

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

6. Frequency Stability

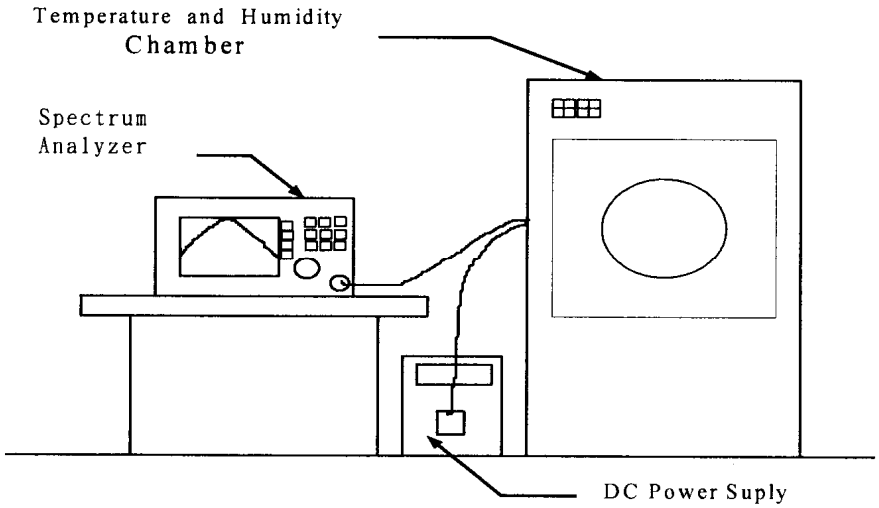
6.1 Test Limit

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of -20 °C to +50 °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°C. For battery operated equipment, the equipment tests shall be performed using a new battery.

6.2 Test Procedure

1. The EUT was placed inside the Temperature and Humidity chamber.
2. The transmitter output was connected to spectrum analyzer.
3. Turn the EUT on and couple its output to a spectrum analyzer.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
6. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
7. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

6.3 Test Setup



6.4 Test Result

Test Item	Frequency Stability Measurement
Test Engineer:	Chris
Test Date	2019-08-02
Test Mode	Transmitting by NFC+RFID

Power Supply(V)	Temperature (℃)	Measured Frequency (MHz)	Frequency Error	Part 15.225 Limit
120	-20	13.560075	0.000553%	±0.01%
	-10	13.560079	0.000583%	±0.01%
	0	13.560088	0.000649%	±0.01%
	10	13.560076	0.000560%	±0.01%
	20	13.560082	0.000605%	±0.01%
	30	13.560092	0.000678%	±0.01%
	40	13.560079	0.000583%	±0.01%
	50	13.560081	0.000597%	±0.01%
102	20	13.560077	0.000568%	±0.01%
138	20	13.560085	0.000627%	±0.01%

7. 20dB Bandwidth Measurement

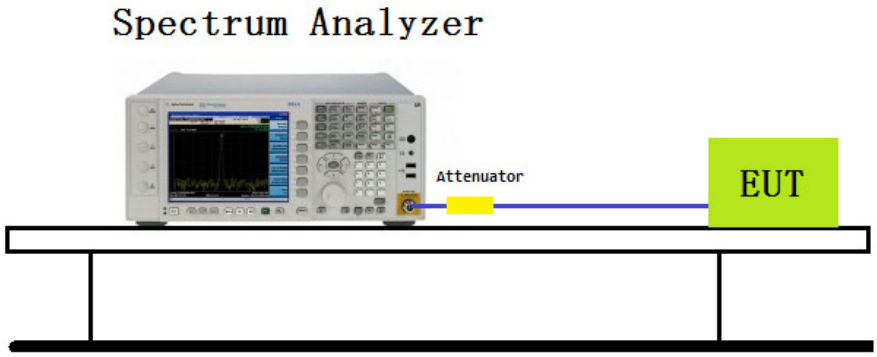
7.1 Test Limit

Per 15.215 (c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

7.2 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.

7.3 Test Setup

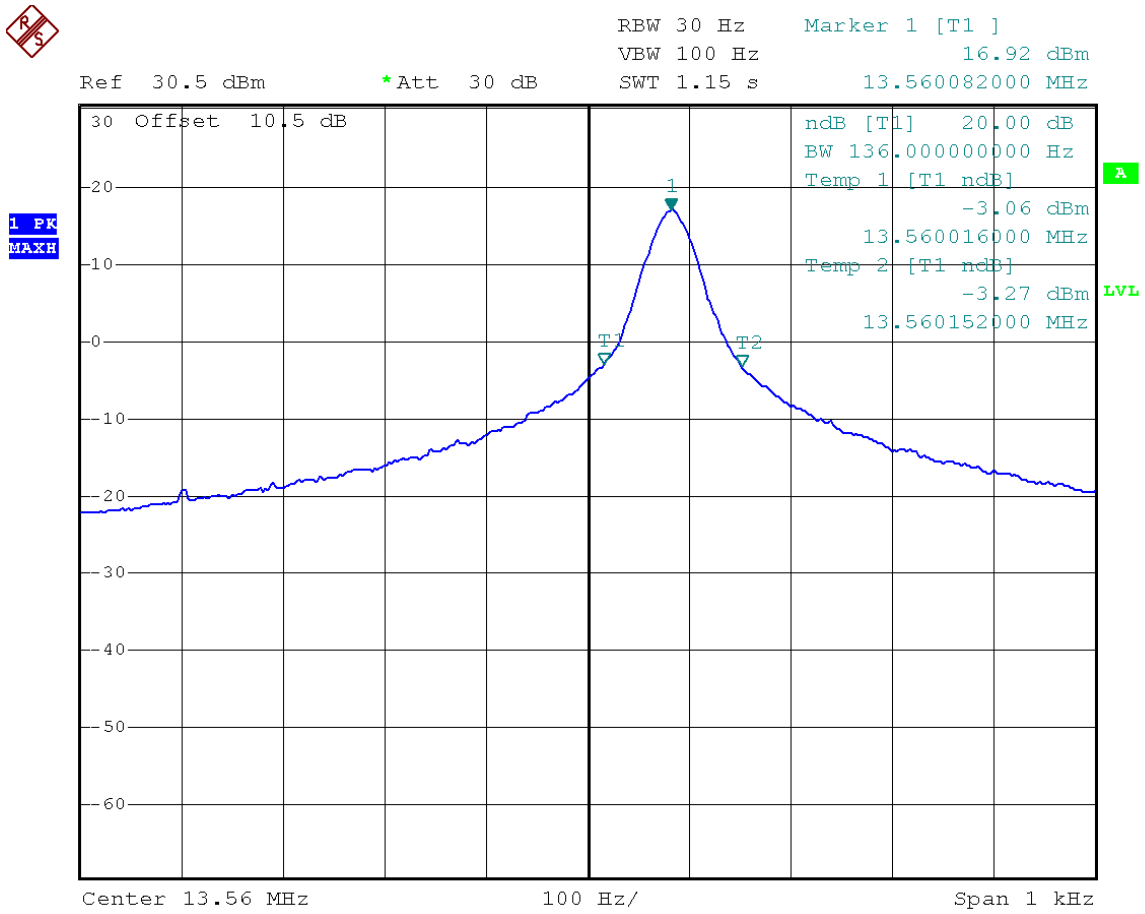


7.4 Test Result

Test Item	20dB Bandwidth Measurement
Test Engineer:	Chris
Test Date	2019-08-02
Test Mode	Transmitting by NFC+RFID

Frequency (MHz)	20dB Bandwidth (Hz)
13.56	136

20 dB Emission Bandwidth



Date: 2.AUG.2019 19:18:51

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