

FCC RF EXPOSURE EVALUATION REPORT

Product Name: Tablet with printer

Trade Mark:



Model No.: M10p

Add. Model No.: N/A

Report Number: 201218035RFC-5

Test Standards: FCC 47 CFR Part 1 Subpart I

FCC ID: 2AUOUM10P

Test Result: PASS

Date of Issue: April 9, 2021

Prepared for:

Rhino Mobility LLC

8 The Green, Suite A, Dover, Delaware, 19901, USA

Prepared by:

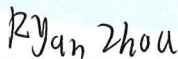
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UTTR-RF-FCCPART1-V1.1

Version

Version No.	Date	Description
V1.0	April 9, 2021	Original



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1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	Rhino Mobility LLC
Address of Applicant:	8 The Green, Suite A, Dover, Delaware, 19901, USA
Manufacturer:	Rhino Mobility LLC
Address of Manufacturer:	8 The Green, Suite A, Dover, Delaware, 19901, USA

1.2 EUT INFORMATION

Product Name:	Tablet with printer		
Model No.:	M10p		
Add. Model No.:	N/A		
Trade Mark:			
DUT Stage:	Identical Prototype		
EUT Supports Function:	GSM Bands:	GSM850/1900	
	UTRA Bands:	Band II/ Band IV/ Band V	
	E-UTRA Bands:	FDD Band 2/ Band 4/ Band 5/ Band 7/ Band 12/ Band 13/ Band 17/ Band 66/ Band 71	
		TDD Band 38/ Band 41	
	2.4 GHz ISM Band:	IEEE 802.11b/g/n	
		Bluetooth 5.0	
	5 GHz U-NII Bands:	5 150 MHz to 5 250 MHz	IEEE 802.11a/n/ac
		5 250 MHz to 5 350 MHz	IEEE 802.11a/n/ac
		5 470 MHz to 5 725 MHz	IEEE 802.11a/n/ac
		5 725 MHz to 5 850 MHz	IEEE 802.11a/n/ac
Sample Received Date:	December 18, 2020		
Sample Tested Date:	December 25, 2020 to March 5, 2021		

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

For BT_LE	
Frequency Band:	2400 MHz to 2483.5 MHz
Frequency Range:	2402 MHz to 2480 MHz
Bluetooth Version:	Bluetooth LE
Type of Modulation:	GFSK
Number of Channels:	40
Channel Separation:	2 MHz
Antenna Type:	FPCB Antenna
Antenna Gain:	1.9 dBi
Maximum Peak Power:	4.9 dBm

For BT_EDR	
Frequency Band:	2400 MHz to 2483.5 MHz
Frequency Range:	2402 MHz to 2480 MHz
Bluetooth Version:	Bluetooth BR + EDR
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Type of Modulation:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channels:	79
Channel Separation:	1 MHz
Antenna Type:	FPCB Antenna
Antenna Gain:	1.9 dBi
Maximum Peak Power:	8.1 dBm

For 2.4 GHz ISM Band of Wi-Fi	
Frequency Band:	2400 MHz to 2483.5 MHz
Frequency Range:	2412 MHz to 2462 MHz
Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n-HT20, IEEE 802.11n-HT40
Type of Modulation:	IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM(64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n-HT20: OFDM(64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n-HT40: OFDM(64-QAM, 16-QAM, QPSK, BPSK)
Data Rate:	IEEE 802.11b: Up to 11 Mbps IEEE 802.11g: Up to 54 Mbps IEEE 802.11n-HT20: Up to MCS7(64 Mbps) IEEE 802.11n-HT40: Up to MCS7(135 Mbps)
Number of Channels:	IEEE 802.11b: 11 IEEE 802.11g: 11 IEEE 802.11n-HT20: 11 IEEE 802.11n-HT40: 7
Channel Separation:	5 MHz
Antenna Type:	FPCB Antenna
Antenna Gain:	1.9 dBi
Maximum Peak Power:	IEEE 802.11b: 18.33 dBm IEEE 802.11g: 21.98 dBm IEEE 802.11n-HT20: 21.67 dBm IEEE 802.11n-HT40: 22.01 dBm

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For 5 GHz U-NII Bands of Wi-Fi					
Frequency Bands:	5150 MHz to 5250 MHz (U-NII-1)				
	5250 MHz to 5350 MHz (U-NII-2A)				
	5470 MHz to 5725 MHz (U-NII-2C)				
	5 725 MHz to 5 850 MHz (U-NII-3)				
Frequency Ranges:	5180 MHz to 5240 MHz				
	5260 MHz to 5320 MHz				
	5500 MHz to 5700 MHz				
	5 745 MHz to 5 825 MHz				
Support Standards:	IEEE 802.11a/n/ac				
TPC Function:	Not Support				
DFS Operational mode:	Slave without radar Interference detection function				
Type of Modulation:	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK)				
	IEEE 802.11n: OFDM(64QAM, 16QAM, QPSK, BPSK)				
	IEEE 802.11ac: OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK)				
Channel Spacing:	IEEE 802.11a/n-HT20/ac-VHT20: 20 MHz				
	IEEE 802.11n-HT40/ac-VHT40: 40 MHz				
	IEEE 802.11ac-VHT80: 80 MHz				
Data Rate:	IEEE 802.11a: Up to 54 Mbps				
	IEEE 802.11n-HT20: Up to MCS7				
	IEEE 802.11n-HT40: Up to MCS7				
	IEEE 802.11ac-VHT20: Up to MCS8				
	IEEE 802.11ac-VHT40: Up to MCS9				
	IEEE 802.11ac-VHT80: Up to MCS9				
Number of Channels:	5150 MHz to 5250 MHz: 4 for IEEE 802.11a/n-HT20/ac-VHT20 2 for IEEE 802.11n-HT40/ac-VHT40 1 for IEEE 802.11acVHT80				
	5250 MHz to 5350 MHz: 4 for IEEE 802.11a/n-HT20/ac-VHT20 2 for IEEE 802.11n-HT40/ac-VHT40 1 for IEEE 802.11acVHT80				
	5470 MHz to 5725 MHz: 11 for IEEE 802.11a/n-HT20/ac-VHT20 5 for IEEE 802.11n-HT40/ac-VHT40 2 for IEEE 802.11ac-VHT80				
	5725 MHz to 5850 MHz: 5 for IEEE 802.11a/n-HT20/ac-VHT20 2 for IEEE 802.11n-HT40/ac-VHT40 1 for IEEE 802.11ac-VHT80				
Antenna Type:	FPCB Antenna				
Antenna Gain:	5150 MHz to 5250 MHz	1.2 dBi			
	5250 MHz to 5350 MHz	1.2 dBi			
	5470 MHz to 5725 MHz	1.2 dBi			
	5725 MHz to 5850 MHz	1.2 dBi			
Maximum conducted output power (dBm):		U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
	IEEE 802.11a:	13.81	13.92	13.66	10.36
	IEEE 802.11n-HT20:	12.76	12.89	12.54	10.21

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	IEEE 802.11n-HT40:	10.80	10.66	9.49	9.81
	IEEE 802.11ac-VHT20	12.81	12.85	13.09	11.92
	IEEE 802.11ac-VHT40	9.85	10.07	10.75	11.88
	IEEE 802.11ac-VHT80:	9.83	10.61	8.42	10.77

For 2/3/4G		
Support Networks:	GSM, WCDMA, LTE	
Frequency Bands:	GSM/GPRS/EDGE 850:	824.2-848.8 MHz
	GSM/GPRS/EDGE 1900:	1850.2-1909.8 MHz
	WCDMA Band II:	1852.4-1907.6 MHz
	WCDMA Band IV:	1712.4-1752.6 MHz
	WCDMA Band V:	826.4-846.6 MHz
	LTE FDD:	Band 2/ 4/ 5/ 7/ 12/ 13/ 17/ 66/71
	LTE TDD:	Band 38/ 41
Max RF Output Power:	GSM/GPRS 850:	33.59 dBm
	GSM/GPRS 1900:	30.09 dBm
	WCDMA Band II:	23.66 dBm
	WCDMA Band IV:	22.83 dBm
	WCDMA Band V:	23.99 dBm
	LTE Band 2:	24.55 dBm
	LTE Band 4:	23.63 dBm
	LTE Band 5:	24.33 dBm
	LTE Band 7:	24.62 dBm
	LTE Band 12:	24.44 dBm
	LTE Band 13:	23.29 dBm
	LTE Band 17:	24.29 dBm
	LTE Band 38:	24.63 dBm
	LTE Band 41:	24.43 dBm
	LTE Band 66:	23.04 dBm
	LTE Band 71:	23.82 dBm
Antenna Type:	FPCB Antenna	
Antenna Gain:	GSM 850:	0.8 dBi
	PCS 1900:	1.2 dBi
	WCDMA Band II:	1.2 dBi
	WCDMA Band IV:	1.3 dBi
	WCDMA Band V:	0.8 dBi
	LTE Band 2:	1.2 dBi
	LTE Band 4:	1.3 dBi
	LTE Band 5:	0.8 dBi
	LTE Band 7:	0.9 dBi
	LTE Band 12:	-0.1 dBi
	LTE Band 13:	0.8 dBi
	LTE Band 17:	-0.1 dBi
	LTE Band 38:	0.9 dBi
	LTE Band 41:	0.9 dBi
	LTE Band 66:	1.3 dBi

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	LTE Band 71:	-0.7 dBi
GPRS Class:	Class 33	

1.4 OTHER INFORMATION

Test channels for BT_LE				
Type of Modulation	Tx/Rx Frequency	Test RF Channel Lists		
GFSK	2402 MHz to 2480 MHz	Lowest(L)	Middle(M)	Highest(H)
		Channel 0	Channel 19	Channel 39
		2402 MHz	2440 MHz	2480 MHz

Test channels for BT_LE				
Type of Modulation	Tx/Rx Frequency	Test RF Channel Lists		
GFSK	2402 MHz to 2480 MHz	Lowest(L)	Middle(M)	Highest(H)
		Channel 0	Channel 19	Channel 39
		2402 MHz	2440 MHz	2480 MHz

Test channels for BT_EDR				
Mode	Tx/Rx Frequency	Test RF Channel Lists		
GFSK (DH1, DH3, DH5)	2402 MHz to 2480 MHz	Lowest(L)	Middle(M)	Highest(H)
		Channel 0	Channel 39	Channel 78
π /4DQPSK (DH1, DH3, DH5)	2402 MHz to 2480 MHz	2402 MHz	2441 MHz	2480 MHz
		Channel 0	Channel 39	Channel 78
8DPSK (DH1, DH3, DH5)	2402 MHz to 2480 MHz	2402 MHz	2441 MHz	2480 MHz
		Channel 0	Channel 39	Channel 78
	2402 MHz to 2480 MHz	2402 MHz	2441 MHz	2480 MHz
		Channel 0	Channel 39	Channel 78

Test channels for 2.4 GHz ISM Band of Wi-Fi				
Mode	Tx/Rx Frequency	Test RF Channel Lists		
IEEE 802.11b	2412 MHz to 2462 MHz	Lowest(L)	Middle(M)	Highest(H)
		Channel 1	Channel 6	Channel 11
IEEE 802.11g	2412 MHz to 2462 MHz	2412 MHz	2437 MHz	2462 MHz
		Channel 1	Channel 6	Channel 11
IEEE 802.11n-HT20	2412 MHz to 2462 MHz	2412 MHz	2437 MHz	2462 MHz
		Channel 1	Channel 6	Channel 11
IEEE 802.11n-HT40	2422 MHz to 2452 MHz	2412 MHz	2437 MHz	2462 MHz
		Channel 3	Channel 6	Channel 9
	2422 MHz to 2452 MHz	2422 MHz	2437 MHz	2452 MHz
		Channel 3	Channel 6	Channel 9

Test channels for 5 GHz U-NII Bands of Wi-Fi				
Mode	Tx/Rx Frequency	Test RF Channel Lists		
IEEE 802.11a	5150 MHz to 5250 MHz	Lowest(L)	Middle(M)	Highest(H)
		Channel 36	Channel 44	Channel 48
IEEE 802.11n-HT20	5150 MHz to 5250 MHz	5180 MHz	5220 MHz	5240 MHz
		Channel 52	Channel 60	Channel 64
IEEE 802.11ac-VHT20	5250 MHz to 5350 MHz	5260 MHz	5300 MHz	5320 MHz
		Channel 52	Channel 60	Channel 64

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	5470 MHz to 5725 MHz	Channel 100	Channel 116	Channel 140
		5500 MHz	5580 MHz	5700 MHz
	5725 MHz to 5850 MHz	Channel 149	Channel 157	Channel 161
		5745 MHz	5785 MHz	5805 MHz
IEEE 802.11n-HT40 IEEE 802.11ac-VHT40	5150 MHz to 5250 MHz	Channel 38	--	Channel 46
		5190 MHz	--	5230 MHz
	5250 MHz to 5350 MHz	Channel 54	--	Channel 62
		5270 MHz	--	5310 MHz
	5470 MHz to 5725 MHz	Channel 102	Channel 110	Channel 134
		5510 MHz	5550 MHz	5670 MHz
	5725 MHz to 5850 MHz	Channel 151	--	Channel 159
		5755 MHz	--	5795 MHz
IEEE 802.11ac-HT80	5150 MHz to 5250 MHz	--	Channel 42	--
		--	5210 MHz	--
	5250 MHz to 5350 MHz	--	Channel 58	--
		--	5290 MHz	--
	5470 MHz to 5725 MHz	Channel 106	--	Channel 122
		5530 MHz	--	5610 MHz
	5725 MHz to 5850 MHz	--	Channel 155	--
		--	5775 MHz	--

Test channels for GSM & WCDMA

Bands	Tx/Rx Frequency	RF Channel		
		Low(L)	Middle(M)	High(H)
GSM/GPRS	Tx (824 MHz ~ 849 MHz)	Channel 128	Channel 190	Channel 251
		824.2 MHz	836.6 MHz	848.8 MHz
WCDMA band V	Tx (824 MHz ~ 849 MHz)	Channel 4132	Channel 4182	Channel 4233
		826.4 MHz	836.4 MHz	846.6 MHz
GSM/GPRS	Tx (1850 MHz-1910 MHz)	Channel 512	Channel 661	Channel 810
		1850.2 MHz	1880.0 MHz	1909.8 MHz
WCDMA Band II	Tx (1850 MHz-1910 MHz)	Channel 9262	Channel 9400	Channel 9538
		1852.4 MHz	1880.0 MHz	1907.6 MHz
WCDMA Band IV	Tx (1710 MHz-1755 MHz)	Channel 1312	Channel 1412	Channel 1513
		1712.4 MHz	1732.4 MHz	1752.6 MHz

Test channels for LTE

Band	Test Frequency ID	Bandwidth (MHz)	Number [UL]	Frequency of Uplink (MHz)
LTE Band 2 TX: 1850-1910MHz	Low Range	1.4	18607	1850.7
		3	18615	1851.5
		5	18625	1852.5
		10	18650	1855
		15	18675	1857.5
		20	18700	1860
	Middle Range	1.4/3/5/10/15/20	18900	1880
	High Range	1.4	19193	1909.3

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		3	19185	1908.5
		5	19175	1907.5
		10	19150	1905
		15	19125	1902.5
		20	19100	1900
LTE Band 4 TX: 1710-1755MHz	Low Range	1.4	19957	1710.7
		3	19965	1711.5
		5	19975	1712.5
		10	20000	1715
		15	20025	1717.5
		20	20050	1720
	Middle Range	1.4/3/5/10/ 15/20	20175	1732.5
	High Range	1.4	20393	1754.3
		3	20385	1753.5
		5	20375	1752.5
		10	20350	1750
		15	20325	1747.5
		20	20300	1745
LTE band 5 TX: 824-849MHz	Low Range	1.4	20407	824.7
		3	20415	825.5
		5	20425	826.5
		10	20450	829
	Middle Range	1.4/3/5/10	20525	836.5
	High Range	1.4	20643	848.3
		3	20635	847.5
		5	20625	846.5
		10	20600	844
LTE Band 7 TX: 2500-2570MHz	Low Range	5	20775	2502.5
		10	20800	2505
		15	20825	2507.5
		20	20850	2510
	Middle Range	5/10/15/20	21100	2535
	High Range	5	21425	2567.5
		10	21400	2565
		15	21375	2562.5
		20	21350	2560
LTE Band 12 TX: 699-716MHz	Low Range	1.4	23017	699.7
		3	23025	700.5
		5	23035	701.5
		10	23060	704
	Middle Range	1.4/3/5/10	23095	707.5
	High Range	1.4	23173	715.3
		3	23165	714.5
		5	23155	713.5
		10	23130	711
LTE Band 13	Low Range	5	23205	779.5

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TX: 777-787MHz		10	23230	782
	Middle Range	5/10	23230	782
	High Range	5	23255	784.5
		10	23230	782
LTE Band 17 TX:704-716MHz	Low Range	5	23755	706.5
		10	23780	709
	Middle Range	5/10	23790	710
		5	23825	713.5
LTE Band 38 TX: 2570-2620MHz	Low Range	10	23800	711
		5	37775	2572.5
		10	37800	2575
		15	37825	2577.5
	Middle Range	20	37850	2580
		5/10/ 15/20	38000	2595
		5	38225	2617.5
		10	38200	2615
		15	38175	2612.5
		20	38150	2610
LTE Band 41 TX: 2496-2690MHz	Low Range	5	39675	2498.5
		10	39700	2501
		15	39725	2503.5
		20	39750	2506
	Middle Range	5/10/ 15/20	40620	2593
		5	41565	2687.5
		10	41540	2685
		15	41515	2682.5
LTE Band 66 TX: 1710-1780MHz	Low Range	20	41490	2680
		1.4	131979	1710.7
		3	131987	1711.5
		5	131997	1712.5
		10	132022	1715
		15	132047	1717.5
	Middle Range	20	132072	1720
		1.4/3/5/10/ 15/20	132322	1745
		1.4	132665	1779.3
		3	132657	1778.5
		5	132647	1777.5
		10	132622	1775
		15	132597	1772.5
		20	132572	1770
LTE Band 71 TX: 663-698MHz	Low Range	5	133147	665.5
		10	133172	668
		15	133197	670.5
		20	133222	673
	Middle Range	5/10/15	133297	680.5
		20	133322	683

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	High Range	5	133447	695.5
		10	133422	693
		15	133397	690.5
		20	133372	688

1.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC 47 CFR Part 1 Subpart I

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

1.6 TEST LOCATION

All tests were performed at:

Shenzhen UnionTrust Quality and Technology Co., Ltd.

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Telephone: +86 (0) 755 2823 0888

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1.7 TEST FACILITY

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L9069

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC/EN 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

A2LA-Lab Certificate No.: 4312.01

Shenzhen UnionTrust Quality and Technology Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

ISED Wireless Device Testing Laboratories

CAB identifier: CN0032

FCC Accredited Lab.

Designation Number: CN1194

Test Firm Registration Number: 259480

1.8 DEVIATION FROM STANDARDS

None.

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1.9 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.10 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

2. EQUIPMENT LIST

Please refer to the RF test report.



3. MPE EVALUATION

3.1 REFERENCE DOCUMENTS FOR EVALUATION

No.	Identity	Document Title
1	FCC 47 CFR Part 1 Subpart I	PROCEDURES IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969
2	KDB 447498 D01 General RF Exposure Guidance v06	RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES

3.2 MPE COMPLIANCE REQUIREMENT

3.2.1 Limits

According to §1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100000	/	/	1	30

Note: f = frequency in MHz: * = Plane-wave equivalent power density.

3.2.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3.3 MPE CALCULATION METHOD

$$S = PG/4\pi R^2 = EIRP/4\pi R^2$$

S = power density (in appropriate units, e.g., mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

3.4 MPE CALCULATION RESULTS

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Note: For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

3.4.1 For WLAN

For Wi-Fi function, operating at 2412MHz to 2462 MHz for IEEE802.11b/g/n and operating at 5150 MHz to 5250 MHz for IEEE802.11a/n/ac and operating at 5250 MHz to 5350 MHz for IEEE802.11a/n/ac and operating at 5470 MHz to 5725 MHz for IEEE802.11a/n/ac and operating at 5725 MHz to 5850 MHz for IEEE802.11a/n/ac.

3.4.1.1 Antenna Type: FPCB Antenna

3.4.1.2 Antenna Gain:

2412MHz to 2462 MHz: 1.9 dBi
5150 MHz to 5250 MHz: 1.2 dBi
5250 MHz to 5350 MHz: 1.2 dBi
5470 MHz to 5725 MHz: 1.2 dBi
5725 MHz to 5850 MHz: 1.2 dBi

3.4.1.3 Results for WLAN

Operating Mode		Freq.	Declared Max. conducted average output power	Max. positive tolerance according manufacturer	Ant. Gain	Calculated maximum EIRP	Declared maximum EIRP	MPE Limit	MPE Value
		(MHz)	(dBm)	(dB)	(dBi)	(dBm)	(mW)	(mw/cm²)	
WLAN	IEEE 802.11b	2412-2462	15	3	1.9	19.9	97.7237	1	0.0194
	IEEE 802.11g	2412-2462	11	3	1.9	15.9	38.9045	1	0.0077
	IEEE 802.11n-HT20	2412-2462	10	3	1.9	14.9	30.9030	1	0.0061
	IEEE 802.11n-HT40	2422-2452	10	3	1.9	14.9	30.9030	1	0.0061
	IEEE 802.11a	U-NII-1	13	3	1.2	17.2	52.4807	1	0.0104
		U-NII-2A	13	3	1.2	17.2	52.4807	1	0.0104
		U-NII-2C	13	3	1.2	17.2	52.4807	1	0.0104
		U-NII-3	9	3	1.2	13.2	20.8930	1	0.0042
	IEEE 802.11n-HT20	U-NII-1	12	3	1.2	16.2	41.6869	1	0.0083
		U-NII-2A	12	3	1.2	16.2	41.6869	1	0.0083
		U-NII-2C	12	3	1.2	16.2	41.6869	1	0.0083
		U-NII-3	9	3	1.2	13.2	20.8930	1	0.0042
	IEEE 802.11ac-VHT20	U-NII-1	12	3	1.2	16.2	41.6869	1	0.0083
		U-NII-2A	12	3	1.2	16.2	41.6869	1	0.0083
		U-NII-2C	12	3	1.2	16.2	41.6869	1	0.0083
		U-NII-3	11	3	1.2	15.2	33.1131	1	0.0066
	IEEE 802.11n-HT40	U-NII-1	10	3	1.2	14.2	26.3027	1	0.0052
		U-NII-2A	10	3	1.2	14.2	26.3027	1	0.0052
		U-NII-2C	8	3	1.2	12.2	16.5959	1	0.0033
		U-NII-3	9	3	1.2	13.2	20.8930	1	0.0042
	IEEE 802.11ac-VHT40	U-NII-1	9	3	1.2	13.2	20.8930	1	0.0042
		U-NII-2A	9	3	1.2	13.2	20.8930	1	0.0042
		U-NII-2C	10	3	1.2	14.2	26.3027	1	0.0052
		U-NII-3	11	3	1.2	15.2	33.1131	1	0.0066
	IEEE 802.11ac-VHT80	U-NII-1	9	3	1.2	13.2	20.8930	1	0.0042
		U-NII-2A	10	3	1.2	14.2	26.3027	1	0.0052
		U-NII-2C	7	3	1.2	11.2	13.1826	1	0.0026
		U-NII-3	10	3	1.2	14.2	26.3027	1	0.0052

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3.4.2 For BT

For BT_LE function, operating at 2402MHz to 2480 MHz for GFSK and

For BT_EDR function, operating at 2402MHz to 2480 MHz for GFSK, $\pi/4$ DQPSK, 8DPSK

3.4.2.1 Antenna Type: FPCB Antenna

3.4.2.2 Antenna Gain:

2402MHz to 2480 MHz: 1.9 dBi

3.4.2.3 Results for BT

Operating Mode	Freq.	Declared Max. conducted average output power	Max. positive tolerance according manufacturer	Ant. Gain	Calculated maximum EIRP	Declared maximum EIRP	MPE Limit	MPE Value
	(MHz)	(dBm)	(dB)	(dBi)	(dBm)	(mW)	(mw/cm ²)	
LE	2402-2480	2	3	1.9	6.9	4.8978	1	0.0010
BR + EDR	2402-2480	5	3	1.9	9.9	9.7724	1	0.0019

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3.4.3 For WWAN

3.4.3.1 Antenna Type: FPCB Antenna

3.4.3.2 Results for WWAN

Operating Mode	Freq.	Declared Max. conducted output power	Max. positive tolerance according manufacturer	Ant. Gain	Calculated maximum EIRP	Duty cycle	Equivalent EIRP	MPE Limit	MPE Value
	(MHz)	(dBm)	(dB)	(dBi)	(dBm)	(%)	(mW)	(mw/cm ²)	
GSM/GPRS 850 (Avg.Burst Power)	824.2-848.8	33	2	0.8	35.8	50	1862.0871	0.5495	0.3704
GSM/GPRS 1900 (Avg.Burst Power)	1850.2 - 1909.8	30	2	1.2	33.2	50	1023.2930	1	0.2036
WCDMA FDD Band 2 (RMS-Value)	1852.4 - 1907.6	24	+1.7/-3.7	1.2	26.9	100	489.7788	1	0.0974
WCDMA FDD Band 4 (RMS-Value)	1712.4 - 1752.6	24	+1.7/-3.7	1.3	27	100	501.1872	1	0.0997
WCDMA FDD Band 5 (RMS-Value)	826.4-846.6	24	+1.7/-3.7	0.8	26.5	100	446.6836	0.5509	0.0889
LTE Band 2 (RMS-Value)	1850-1910	23	±2.7	1.2	26.9	100	489.7788	1	0.0974
LTE Band 4 (RMS-Value)	1710-1755	23	±2.7	1.3	27	100	501.1872	1	0.0997
LTE Band 5 (RMS-Value)	824-849	23	±2.7	0.8	26.5	100	446.6836	0.5493	0.0889
LTE Band 7 (RMS-Value)	2500-2570	23	±2.7	0.9	26.6	100	457.0882	1	0.0909
LTE Band 12 (RMS-Value)	699-716	23	±2.7	-0.1	25.6	100	363.0781	0.4660	0.0722
LTE Band 13 (RMS-Value)	777-787	23	±2.7	0.8	26.5	100	446.6836	0.5180	0.0889
LTE Band 17 (RMS-Value)	704-716	23	±2.7	-0.1	25.6	100	363.0781	0.4693	0.0722
LTE Band 38 (RMS-Value)	2570-2620	23	±2.7	0.9	26.6	100	457.0882	1	0.0909
LTE Band 41 (RMS-Value)	2496-2690	23	±2.7	0.9	26.6	100	457.0882	1	0.0909
LTE Band 66 (RMS-Value)	1710-1780	23	±2.7	1.3	27	100	501.1872	1	0.0997
LTE Band 71 (RMS-Value)	663-698	23	±2.7	-0.7	25	100	316.2278	0.4421	0.0629

Note 1: Calculated maximum EIRP = Declared maximum conducted output power + Max. Positive tolerance according manufacturer + Antenna Gain.

Note 2: Declared maximum EIRP = $10^{\left(\frac{\text{Calculated maximum EIRP}}{10}\right)}$.

Note 3: Equivalent EIRP = Declared maximum EIRP * Duty cycle.

Note 4: Margin = MPE Limit - MPE Value.

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3.4.4 Simultaneous Multi-band Transmission MPE Analysis

3.4.4.1 List of Mode for Simultaneous Multi-band Transmission

No.	Configurations	Support/Not Support
1	GSM + WLAN	Support
2	GSM + BT	Support
3	GSM + WLAN + BT	Support
4	WCDMA + WLAN	Support
5	WCDMA + BT	Support
6	WCDMA + WLAN + BT	Support
7	LTE + WLAN	Support
8	LTE + BT	Support
9	LTE + WLAN + BT	Support

3.4.4.2 Results for transmit simultaneously

For MPE ratios

No.	Operating Mode	Maximum MPE Value (mw/cm ²)	Limits	MPE ratios
1	GSM/GPRS 850	0.3704	0.5495	0.6741
2	GSM/GPRS 1900	0.2036	1	0.2036
3	WCDMA FDD Band 2	0.0974	1	0.0974
4	WCDMA FDD Band 4	0.0997	1	0.0997
5	WCDMA FDD Band 5	0.0889	0.5509	0.1614
6	LTE Band 2	0.0974	1	0.0974
7	LTE Band 4	0.0997	1	0.0997
8	LTE Band 5	0.0889	0.5493	0.1618
9	LTE Band 7	0.0909	1	0.0909
10	LTE Band 12	0.0722	0.4660	0.1549
11	LTE Band 13	0.0889	0.5180	0.1716
12	LTE Band 17	0.0722	0.4693	0.1538
13	LTE Band 38	0.0909	1	0.0909
14	LTE Band 41	0.0909	1	0.0909
15	LTE Band 66	0.0997	1	0.0997
16	LTE Band 71	0.0629	0.4421	0.1423
17	WLAN	0.0194	1	0.0194
18	BT	0.0019	1	0.0019

Note 1: According to KDB 447498 D01 General RF Exposure Guidance v06, At the transmit simultaneously calculation method is as follows:

Transmit simultaneously MPE = Σ of MPE ratios

MPE ratios = Field strengths or power density / MPE limit at the test frequency

For Transmit simultaneously MPE

No.	Configurations	Maximum MPE Ratios			Transmit simultaneously	Limit	Results
		WWAN MPE Ratios	WLAN MPE Ratios	BT MPE ratios			
1	GSM + WLAN	0.6741	0.0154	--	0.6895	1	PASS
2	GSM + BT	0.6741	--	0.0019	0.6760	1	PASS
3	GSM + WLAN + BT	0.6741	0.0154	0.0019	0.6914	1	PASS
4	WCDMA + WLAN	0.1614	0.0154	--	0.1768	1	PASS
5	WCDMA + BT	0.1614	--	0.0019	0.1633	1	PASS
6	WCDMA + WLAN + BT	0.1614	0.0154	0.0019	0.1787	1	PASS
7	LTE + WLAN	0.1716	0.0154	--	0.1870	1	PASS
8	LTE + BT	0.1716	--	0.0019	0.1735	1	PASS
9	LTE + WLAN + BT	0.1716	0.0154	0.0019	0.1889	1	PASS

Note 1: According to KDB 447498 D01 General RF Exposure Guidance v06, At the transmit simultaneously calculation method is as follows:

Transmit simultaneously MPE = Σ of MPE ratios

MPE ratios = Field strengths or power density / MPE limit at the test frequency

APPENDIX 1 PHOTOS OF TEST SETUP

N/A

APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal photos.

*** End of Report ***

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