

RF Exposure Evaluation Report

Report Reference No...... : **MTEB23110030-H**

FCC ID..... : **R66-HD-2**

Compiled by

(position+printed name+signature)..: File administrators Alisa Luo



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Date of issue..... : Nov. 17, 2023

Representative Laboratory Name. : **Shenzhen Most Technology Service Co., Ltd.**

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Applicant's name..... : **Hisense Broadband Multimedia Technologies Co., Ltd**

Address..... : No.218 Qianwangang Road, Economy & Technology Development
Zone, Qingdao, China

Test specification/ Standard..... : **47 CFR Part 1.1307; 47 CFR Part 1.1310**

KDB447498D01 General RF Exposure Guidance v06

TRF Originator..... : Shenzhen Most Technology Service Co., Ltd.

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Test item description..... : TV Stick, Smart TV Stick

Trade Mark..... : Hisense

Model/Type reference..... : IP960D

Listed Models : HD2, IP960D(Hisense), IP961D, IP962D, IP963D, IP964D,
IP965D, IP966D, IP967D, IP968D, IP969D, IP960D(COCL0),
IP960D(COCL1), IP960D(COCL2), IP960D(COCL3),
IP960D(COCL4), IP960D(COCL5)

Modulation Type..... : GFSK
GFSK, $\pi/4$ QPSK, 8DPSK
b: DSSS, CCK g/n: BPSK, QPSK, QAM
OFDM

Operation Frequency..... : BT: From 2402MHz to 2480MHz
WIFI 2.4G: From 2412MHz to 2462MHz
WIFI 5G: From 5180MHz-5240MHz
From 5260MHz-5320MHz
From 5500MHz-5720MHz
From 5745MHz-5825MHz

Hardware Version..... : 01TP

Software Version..... : 1007

Rating..... : DC 5V by Adapter

Result..... : **PASS**

TEST REPORT

Equipment under Test : TV Stick,Smart TV Stick

Model /Type : IP960D

Listed Models : HD2, IP960D(Hisense), IP961D, IP962D,IP963D, IP964D, IP965D,IP966D, IP967D,IP968D,IP969D, IP960D(COCL0), IP960D(COCL1), IP960D(COCL2), IP960D(COCL3), IP960D(COCL4), IP960D(COCL5)

Remark : Same product, different sales area, different name

Applicant : Hisense Broadband Multimedia Technologies Co.,Ltd

Address : No.218 Qianwangang Road,Economy & Technology Development Zone,Qingdao,China

Manufacturer : Hisense Broadband Multimedia Technologies Co.,Ltd

Address : No.218 Qianwangang Road,Economy & Technology Development Zone,Qingdao,China

Test Result:	PASS
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

1. Revision History

Revision	Issue Date	Revisions	Revised By
00	2023.11.17	Initial Issue	Alisa Luo

2. SAR Evaluation

2.1 RF Exposure Compliance Requirement

2.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

2.1.2 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$ Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.1.3 EUT RF Exposure

Antenna Gain: 4.24dBi
BLE

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	-1.629	-1.629 ± 1	-0.629
Middle(2440MHz)	-0.491	-0.491 ± 1	0.509
Highest(2480MHz)	-0.703	-0.703 ± 1	0.297

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Maximum Peak Conducted Output Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Middle(2440MHz)	0.509	1.12	4.24	0.00059	1.0	Pass

Note: 1) Refer to report **MTEB23110030-R** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (1.12 * 2.65) / (4 * 3.1416 * 20^2) = 0.00059$

Antenna Gain: 4.24dBi
BT classic

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	1.747	1.747 ± 1	2.747
Middle(2441MHz)	2.758	2.758 ± 1	3.758
Highest(2480MHz)	2.450	2.450 ± 1	3.45

$\pi/4$ DQPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	3.641	3.641 ± 1	4.641
Middle(2441MHz)	4.655	4.655 ± 1	5.655
Highest(2480MHz)	4.463	4.463 ± 1	5.463

8DPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	3.752	3.752 ± 1	4.752
Middle(2441MHz)	4.710	4.710 ± 1	5.71
Highest(2480MHz)	4.464	4.464 ± 1	5.464

Worst case: 8DPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Maximum Peak Conducted Output Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Middle(2441MHz)	5.71	3.72	4.24	0.00196	1.0	Pass

Note: 1) Refer to report **MTEB23110030-R1** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (3.72 * 2.65) / (4 * 3.1416 * 20^2) = 0.00196$

Note: 3) EUT's Bluetooth module is more than 20cm away from the human body.

Antenna 1 : 4.27dBi
WIFI 2.4G

802.11b			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	13.47	13.47 ± 1	14.47
Middle(2437MHz)	13.33	13.33 ± 1	14.33
Highest(2462MHz)	13.19	13.19 ± 1	14.19

802.11g			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	14.37	14.37 ± 1	15.37
Middle(2437MHz)	14.36	14.36 ± 1	15.36
Highest(2462MHz)	14.32	14.32 ± 1	15.32

802.11n(H20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	13.83	13.83 ± 1	14.83
Middle(2437MHz)	13.96	13.96 ± 1	14.96
Highest(2462MHz)	13.63	13.63 ± 1	14.63

802.11n(H40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2422MHz)	13.79	13.79 ± 1	14.79
Middle(2437MHz)	13.80	13.80 ± 1	14.8
Highest(2452MHz)	13.73	13.73 ± 1	14.73

WIFI 2.4G

Worst case: 802.11g						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Lowest(2412MHz)	15.37	34.43	4.27	0.0183	1.0	Pass

Note: 1) Refer to report **MTEB23110030-R2** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (34.43 \cdot 2.67) / (4 \cdot 3.1416 \cdot 20^2) = 0.0183$

Antenna 2: 4.24dBi
WIFI 2.4G

802.11b			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	13.45	13.45 ± 1	14.45
Middle(2437MHz)	13.43	13.43 ± 1	14.43
Highest(2462MHz)	13.39	13.39 ± 1	14.39

802.11g			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	14.41	14.41 ± 1	15.41
Middle(2437MHz)	14.42	14.42 ± 1	15.42
Highest(2462MHz)	14.31	14.31 ± 1	15.31

802.11n(H20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	13.98	13.98 ± 1	14.98
Middle(2437MHz)	13.89	13.89 ± 1	14.89
Highest(2462MHz)	13.77	13.77 ± 1	14.77

802.11n(H40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2422MHz)	13.86	13.86 ± 1	14.86
Middle(2437MHz)	13.85	13.85 ± 1	14.85
Highest(2452MHz)	13.75	13.75 ± 1	14.75

WIFI 2.4G

Worst case: 802.11g						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Middle(2437MHz)	15.42	34.83	4.24	0.0184	1.0	Pass

Note: 1) Refer to report **MTEB23110030-R2** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (34.83 \cdot 2.65) / (4 \cdot 3.1416 \cdot 20^2) = 0.0184$

Antenna 1+2:

WIFI 2.4G

802.11n(H20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	16.92	16.92 ± 1	17.92
Middle(2437MHz)	16.94	16.94 ± 1	17.94
Highest(2462MHz)	16.71	16.71 ± 1	17.71

802.11n(H40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2422MHz)	16.84	16.84 ± 1	17.84
Middle(2437MHz)	16.84	16.84 ± 1	17.84
Highest(2452MHz)	16.75	16.75 ± 1	17.75

WIFI 2.4G

Worst case: 802.11n(H20)						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Lowest(2412MHz)	17.92	61.94	4.27	0.033	1.0	Pass

Note: 1) Refer to report **MTEB23110030-R2** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (61.94 * 2.67) / (4 * 3.1416 * 20^2) = 0.033$

Antenna 1: 3.09dBi
WIFI 5.1G

IEEE for 802.11a			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	11.701	11.701±1	12.701
40	11.824	11.824±1	12.824
48	12.448	12.448± 1	13.448

IEEE for 802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	11.416	11.416±1	12.416
40	11.403	11.403±1	12.403
48	12.314	12.314± 1	13.314

IEEE for 802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
38	9.311	9.311±1	10.311
46	9.978	9.978± 1	10.978

IEEE for 802.11ac(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	11.404	11.404±1	12.404
40	11.442	11.442±1	12.442
48	12.194	12.194± 1	13.194

IEEE for 802.11 ac(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
38	9.826	9.826±1	10.826
46	8.969	8.969±1	9.969

IEEE for 802.11ac(HT80)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
42	9.058	9.058±1	10.058

Worst case: IEEE for 802.11a						
Channel	Maximum Peak Conducted Output Power	Maximum Peak Conducted Output Power	Antenna Gain	Power Density at R = 20 cm	Limit	Result
	(dBm)	(MW)	(dBi)	(mW/cm2)		
Highest (5240MHz)	13.448	22.12	3.09	0.0090	1.0	Pass

Note: 1) Refer to report **MTEB23110030-R4** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (22.12 \cdot 2.04) / (4 \cdot 3.1416 \cdot 20^2) = 0.0090$

Antenna 2: 3.57dBi
WIFI 5.1G

IEEE for 802.11a			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	9.836	9.836±1	10.836
40	10.033	10.033±1	11.033
48	11.467	11.467± 1	12.467

IEEE for 802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	9.414	9.414±1	10.414
40	9.662	9.662±1	10.662
48	10.972	10.972 ± 1	11.972

IEEE for 802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
38	9.407	9.407±1	10.407
46	8.544	8.544 ± 1	9.544

IEEE for 802.11ac(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	9.365	9.365±1	10.365
40	9.595	9.595±1	10.595
48	11.092	11.092± 1	12.092

IEEE for 802.11 ac(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
38	10.560	10.560±1	11.56
46	8.720	8.720±1	9.72

IEEE for 802.11ac(HT80)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
42	9.289	9.289±1	10.289

Worst case: IEEE for 802.11a						
Channel	Maximum Peak Conducted Output Power	Maximum Peak Conducted Output Power	Antenna Gain	Power Density at R = 20 cm	Limit	Result
	(dBm)	(MW)	(dBi)	(mW/cm2)		
Highest (5240MHz)	12.467	17.65	3.57	0.0080	1.0	Pass

Note: 1) Refer to report **MTEB23110030-R4** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (17.65 \cdot 2.28) / (4 \cdot 3.1416 \cdot 20^2) = 0.0080$

Antenna 1+2:
WIFI 5.1G

IEEE for 802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	16.20	16.20 ±1	17.20
40	16.22	16.22 ±1	17.22
48	17.28	17.28±1	18.28

IEEE for 802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
38	17.06	17.06±1	18.06
46	17.02	17.02 ±1	18.02

IEEE for 802.11ac(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	15.98	15.98 ±1	16.98
40	15.96	15.96 ±1	16.96
48	17.16	17.16 ±1	18.16

IEEE for 802.11 ac(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
38	17.56	17.56 ±1	18.56
46	16.24	16.24 ±1	17.24

IEEE for 802.11ac(HT80)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
42	18.40	18.40±1	19.40

Worst case: IEEE for 802.11n(HT20)						
Channel	Maximum Peak Conducted Output Power	Maximum Peak Conducted Output Power	Antenna Gain	Power Density at R = 20 cm	Limit	Result
	(dBm)	(MW)	(dBi)	(mW/cm ²)		
Highest (5210MHz)	19.40	87.096	3.57	0.0395	1.0	Pass

Note: 1) Refer to report **MTEB23110030-R4** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (87.096 \cdot 2.28) / (4 \cdot 3.1416 \cdot 20^2) = 0.0395$

Antenna 1: 3.09dBi
WIFI 5.2G

IEEE for 802.11a			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	10.66	10.66±1	11.66
40	12.71	12.71±1	13.71
48	12.13	12.13± 1	13.13

IEEE for 802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	10.72	10.72±1	11.72
40	12.10	12.10±1	13.1
48	12.08	12.08 ± 1	13.08

IEEE for 802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
38	10.84	10.84±1	11.84
46	12.49	12.49 ± 1	13.49

IEEE for 802.11ac(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	11.06	11.06±1	12.06
40	12.25	12.25±1	13.25
48	12.60	12.60± 1	13.6

IEEE for 802.11 ac(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
38	11.35	11.35±1	12.35
46	12.18	12.18±1	13.18

IEEE for 802.11ac(HT80)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
42	12.33	12.33±1	13.33

Worst case: IEEE for 802.11a						
Channel	Maximum Peak Conducted Output Power	Maximum Peak Conducted Output Power	Antenna Gain	Power Density at R = 20 cm	Limit	Result
	(dBm)	(MW)	(dBi)	(mW/cm ²)		
Middle (5300MHz)	13.71	23.50	3.09	0.0095	1.0	Pass

Note: 1) Refer to report **BTF230913R00704** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (23.50 \cdot 2.04) / (4 \cdot 3.1416 \cdot 20^2) = 0.0095$

Antenna 2: 3.57dBi
WIFI 5.2G

IEEE for 802.11a			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	10.58	10.58±1	11.58
40	12.21	12.21±1	13.21
48	12.13	12.13± 1	13.13

IEEE for 802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	10.58	10.58±1	11.58
40	12.08	12.08±1	13.08
48	11.99	11.99 ± 1	12.99

IEEE for 802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
38	10.87	10.87±1	11.87
46	12.37	12.37 ± 1	13.37

IEEE for 802.11ac(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	9.91	9.91±1	10.91
40	12.06	12.06±1	13.06
48	12.02	12.02± 1	13.02

IEEE for 802.11 ac(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
38	10.88	10.88±1	11.88
46	12.32	12.32±1	13.32

IEEE for 802.11ac(HT80)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
42	12.46	12.46±1	13.46

Worst case: IEEE for 802.11ac(HT80)						
Channel	Maximum Peak Conducted Output Power	Maximum Peak Conducted Output Power	Antenna Gain	Power Density at R = 20 cm	Limit	Result
	(dBm)	(MW)	(dBi)	(mW/cm2)		
Highest (5240MHz)	13.46	22.18	3.57	0.0101	1.0	Pass

Note: 1) Refer to report **BTF230913R00704** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (22.18 \cdot 2.28) / (4 \cdot 3.1416 \cdot 20^2) = 0.0101$

Antenna 1+2:
WIFI 5.2G

IEEE for 802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	13.66	13.66±1	14.66
40	15.10	15.10±1	16.1
48	15.05	15.05 ± 1	16.05

IEEE for 802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
38	13.87	13.87±1	14.87
46	15.44	15.44 ± 1	16.44

IEEE for 802.11ac(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
36	13.53	13.53±1	14.53
40	15.17	15.17±1	16.17
48	15.33	15.33± 1	16.33

IEEE for 802.11 ac(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
38	14.13	14.13±1	15.13
46	15.26	15.26±1	16.26

IEEE for 802.11ac(HT80)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
42	15.41	15.41±1	16.41

Worst case: IEEE for 802.11n(HT40)						
Channel	Maximum Peak Conducted Output Power	Maximum Peak Conducted Output Power	Antenna Gain	Power Density at R = 20 cm	Limit	Result
	(dBm)	(MW)	(dBi)	(mW/cm ²)		
Highest (5310MHz)	16.44	44.05	3.57	0.0200	1.0	Pass

Note: 1) Refer to report **BTF230913R00704** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (44.05 \cdot 2.28) / (4 \cdot 3.1416 \cdot 20^2) = 0.0200$

Antenna 1: 3.09dBi
WIFI 5.3G

IEEE for 802.11a			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5500	12.18	12.18±1	13.18
5580	12.64	12.64±1	13.64
5700	13.50	13.50± 1	14.5

IEEE for 802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5500	12.27	12.27±1	13.27
5580	13.04	13.04±1	14.04
5700	13.20	13.20 ± 1	14.2

IEEE for 802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5510	12.14	12.14±1	13.14
5550	12.52	12.52 ± 1	13.52
5670	13.14	13.14±1	14.14

IEEE for 802.11ac(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5500	11.81	11.81±1	12.81
5580	12.25	12.25±1	13.25
5700	12.46	12.46± 1	13.46

IEEE for 802.11 ac(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5510	12.15	12.15±1	13.15
5550	12.59	12.59±1	13.59
5670	13.31	13.31±1	14.31

IEEE for 802.11ac(HT80)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5530	12.15	12.15±1	13.15
5610	13.12	13.12±1	14.12

Worst case: IEEE for 802.11a						
Channel	Maximum Peak Conducted Output Power	Maximum Peak Conducted Output Power	Antenna Gain	Power Density at R = 20 cm	Limit	Result
	(dBm)	(MW)	(dBi)	(mW/cm2)		
Highest (5700MHz)	14.5	28.18	3.09	0.0114	1.0	Pass

Note: 1) Refer to report **BTF230912R00704** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (28.18 \cdot 2.04) / (4 \cdot 3.1416 \cdot 20^2) = 0.0114$

Antenna 2: 3.57dBi
WIFI 5.3G

IEEE for 802.11a			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5500	12.10	12.10±1	13.1
5580	12.48	12.48±1	13.48
5700	12.68	12.68± 1	13.68

IEEE for 802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5500	11.96	11.96±1	12.96
5580	12.34	12.34±1	13.34
5700	12.60	12.60 ± 1	13.6

IEEE for 802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5510	12.16	12.16±1	13.16
5550	12.17	12.17 ± 1	13.17
5670	12.84	12.84±1	13.84

IEEE for 802.11ac(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5500	12.06	12.06±1	13.06
5580	12.50	12.50±1	13.5
5700	12.66	12.66± 1	13.66

IEEE for 802.11 ac(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5510	12.08	12.08±1	13.08
5550	12.35	12.35±1	13.35
5670	13.02	13.02±1	14.02

IEEE for 802.11ac(HT80)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5530	12.34	12.34±1	13.34
5610	12.79	12.79±1	13.79

Worst case: IEEE for 802.11 n(HT40)						
Channel	Maximum Peak Conducted Output Power	Maximum Peak Conducted Output Power	Antenna Gain	Power Density at R = 20 cm	Limit	Result
	(dBm)	(MW)	(dBi)	(mW/cm2)		
Highest (5670MHz)	13.84	24.21	3.57	0.0110	1.0	Pass

Note: 1) Refer to report **BTF230912R00704** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (24.21 \cdot 2.28) / (4 \cdot 3.1416 \cdot 20^2) = 0.0110$

Antenna 1+2:
WIFI 5.3G

IEEE for 802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5500	15.13	15.13±1	16.13
5580	15.71	15.71±1	16.71
5700	15.92	15.92±1	16.92

IEEE for 802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5510	15.16	15.16±1	16.16
5550	15.36	15.36±1	16.36
5670	16.00	16.00±1	17

IEEE for 802.11ac(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5500	14.95	14.95±1	15.95
5580	15.39	15.39±1	16.39
5700	15.57	15.57± 1	16.57

IEEE for 802.11 ac(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5510	15.13	15.13±1	16.13
5550	15.48	15.48±1	16.48
5670	16.18	16.18±1	17.18

IEEE for 802.11ac(HT80)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
5530	15.26	15.26±1	16.26
5610	15.97	15.97±1	16.97

Worst case: IEEE for 802.11 ac(HT80)						
Channel	Maximum Peak Conducted Output Power	Maximum Peak Conducted Output Power	Antenna Gain	Power Density at R = 20 cm	Limit	Result
	(dBm)	(MW)	(dBi)	(mW/cm ²)		
Highest (5670MHz)	17.18	52.24	3.57	0.0237	1.0	Pass

Note: 1) Refer to report **BTF230912R00704** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (52.24 \cdot 2.28) / (4 \cdot 3.1416 \cdot 20^2) = 0.0237$

Antenna 1: 3.59dBi
WIFI 5.8G

IEEE for 802.11a			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
149	12.870	12.870±1	13.87
157	12.493	12.493±1	13.493
165	11.342	11.342± 1	12.342

IEEE for 802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
149	12.527	12.527±1	11.847
157	12.018	12.018±1	11.847
165	10.847	10.847 ± 1	11.847

IEEE for 802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
151	10.227	10.227±1	11.227
159	10.484	10.484 ± 1	11.484

IEEE for 802.11ac(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
149	12.574	12.574±1	13.574
157	12.039	12.039±1	13.039
165	11.027	11.027± 1	12.027

IEEE for 802.11 ac(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
151	10.381	10.381±1	11.381
159	11.614	11.614±1	12.614

IEEE for 802.11ac(HT80)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
155	10.319	10.319±1	11.319

Worst case: IEEE for 802.11a						
Channel	Maximum Peak Conducted Output Power	Maximum Peak Conducted Output Power	Antenna Gain	Power Density at R = 20 cm	Limit	Result
	(dBm)	(MW)	(dBi)	(mW/cm2)		
Lowest (5745MHz)	13.87	24.38	3.59	0.0111	1.0	Pass

Note: 1) Refer to report **MTEB23110030-R3** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (24.38 \cdot 2.29) / (4 \cdot 3.1416 \cdot 20^2) = 0.0111$

Antenna 2: 3.12dBi
WIFI 5.8G

IEEE for 802.11a			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
149	12.765	12.765±1	13.765
157	12.403	12.403±1	13.403
165	11.272	11.272± 1	12.272

IEEE for 802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
149	12.512	12.512±1	13.512
157	11.959	11.959±1	12.959
165	10.952	10.952 ± 1	11.952

IEEE for 802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
151	10.309	10.309±1	11.309
159	10.475	10.475 ± 1	11.475

IEEE for 802.11ac(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
149	12.566	12.566±1	13.566
157	12.130	12.130±1	13.13
165	10.976	10.976± 1	11.976

IEEE for 802.11 ac(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
151	10.437	10.437±1	11.437
159	11.641	11.641±1	12.641

IEEE for 802.11ac(HT80)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
155	10.482	10.482±1	11.482

Worst case: IEEE for 802.11a						
Channel	Maximum Peak Conducted Output Power	Maximum Peak Conducted Output Power	Antenna Gain	Power Density at R = 20 cm	Limit	Result
	(dBm)	(MW)	(dBi)	(mW/cm ²)		
Lowest (5745MHz)	13.765	23.80	3.12	0.0099	1.0	Pass

Note: 1) Refer to report **MTEB23110030-R3** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (24.38 \cdot 2.05) / (4 \cdot 3.1416 \cdot 20^2) = 0.0099$

Antenna 1+2:
WIFI 5.8G

IEEE for 802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
149	18.05	18.05±1	19.05
157	17.51	17.51±1	18.51
165	16.49	16.49±1	17.49

IEEE for 802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
151	17.97	17.97±1	18.97
159	18.18	18.18±1	19.18

IEEE for 802.11ac(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
149	18.59	18.59±1	19.59
157	17.50	17.50±1	18.50
165	16.38	16.38±1	17.38

IEEE for 802.11 ac(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
151	17.83	17.83±1	18.83
159	19.07	19.07±1	20.07

IEEE for 802.11ac(HT80)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
155	19.38	19.38±1	21.38

Worst case: IEEE for 802.11ac(HT80)						
Channel	Maximum Peak Conducted Output Power	Maximum Peak Conducted Output Power	Antenna Gain	Power Density at R = 20 cm	Limit	Result
	(dBm)	(MW)	(dBi)	(mW/cm ²)		
Lowest (5775MHz)	21.38	137.4	3.59	0.0626	1.0	Pass

Note: 1) Refer to report **MTEB23110030-R3** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (137.4 \cdot 2.29) / (4 \cdot 3.1416 \cdot 20^2) = 0.0626$

.....**THE END OF REPORT**.....