RF Exposure Report

Panasonic Model: R8U1FA6550Z
P/N: R8U1FA6550Z

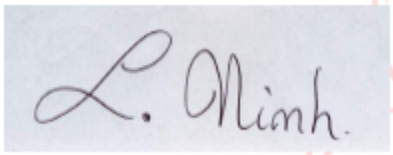
BTv4.0 Dual Mode USB HCI Module

FCC ID: U6YBT800
IC: 219P-BT800

Rev. A

Nov. 9, 2017

Reviewed and approved by:



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1. Scope

This document describes the comparison of the measurements taken for SAR evaluation for the Panasonic Bluetooth RJM module, R8U1FA6550Z,

2. DTS BLE for FCC

DTS (FCC), BLE

Average output power from report: page 14 of 11961637H-A(FCC15C_DTS)

BTLE

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	Result (Time average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
2402	-18.82	0.66	10.09	-8.07	0.16	2.03	-6.04	0.25
2440	-17.19	0.66	10.09	-6.44	0.23	2.03	-4.41	0.36
2480	-15.52	0.66	10.09	-4.77	0.33	2.03	-2.74	0.53

FCC RF Exposure: report RF Exposure (FCC15C_DTS)

-4.77dBm + (-2.3dBi) = -7.07 dBm (eirp) = 0.2mW (eirp)

Appendix A

***SAR Test Exclusion Thresholds* for 100 MHz – 6 GHz and ≤ 50 mm**

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table. The equation and threshold in 4.3.1 must be applied to determine SAR test exclusion.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	*SAR Test Exclusion Threshold* (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	

Conclusion: a power level of 0.2mW (includes antenna gain) in BLE mode is EXEMPT.

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3. FHSS Bluetooth for FCC

FHSS FCC report – page 14 of 11961637H-B (FCC15C_FHSS)

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	Result (Time average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
DH5	2402.0	-5.23	0.66	10.09	5.52	3.57	1.06	6.58	4.55
DH5	2441.0	-4.32	0.66	10.09	6.43	4.40	1.06	7.49	5.62
DH5	2480.0	-3.58	0.66	10.09	7.17	5.22	1.06	8.23	6.66
2DH5	2402.0	-8.95	0.66	10.09	1.80	1.51	1.04	2.84	1.92
2DH5	2441.0	-7.69	0.66	10.09	3.06	2.02	1.04	4.10	2.57
2DH5	2480.0	-6.49	0.66	10.09	4.26	2.67	1.04	5.30	3.39
3DH5	2402.0	-8.93	0.66	10.09	1.82	1.52	1.03	2.85	1.93
3DH5	2441.0	-7.67	0.66	10.09	3.08	2.03	1.03	4.11	2.58
3DH5	2480.0	-6.47	0.66	10.09	4.28	2.68	1.03	5.31	3.40

FCC RF Exposure: report RF Exposure (FCC15C_FHSS)
7.17dBm + (-2.3dBi) = 4.87dBm (eirp) = 3.07mW(eirp)

Appendix A

***SAR Test Exclusion Thresholds* for 100 MHz – 6 GHz and ≤ 50 mm**

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table. The equation and threshold in 4.3.1 must be applied to determine SAR test exclusion.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	*SAR Test Exclusion Threshold* (mW)
1900	11	22	33	44	54	
2450	10	19	29	38	48	

Conclusion: the measured power of 3.07mW (includes antenna gain) in FHSS mode is EXEMPT.

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4. Industry Canada, Report: page 14 of 11961637H-C(IC_DTS), page 14 of 11961637H-D(IC_FHSS)

DTS:

BTLE

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	Result (Time average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
2402	-18.82	0.66	10.09	-8.07	0.16	2.03	-6.04	0.25
2440	-17.19	0.66	10.09	-6.44	0.23	2.03	-4.41	0.36
2480	-15.52	0.66	10.09	-4.77	0.33	2.03	-2.74	0.53

FHSS:

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	Result (Time average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
DH5	2402.0	-5.23	0.66	10.09	5.52	3.57	1.06	6.58	4.55
DH5	2441.0	-4.32	0.66	10.09	6.43	4.40	1.06	7.49	5.62
DH5	2480.0	-3.58	0.66	10.09	7.17	5.22	1.06	8.23	6.66
2DH5	2402.0	-8.95	0.66	10.09	1.80	1.51	1.04	2.84	1.92

(Bluetooth LE)

Frequency	Power (AV)		
	Conducted	EIRP	Field Strength
2402 - 2480 MHz	0.33 mW (-4.77dBm)	0.20 mW (-7.07dBm)	-
The values were derived from measurement of output power at the antenna port and nominal antenna gain(-2.3dBi) specified by the antenna manufacturer.			

(Bluetooth)

Frequency	Power (AV)		
	Conducted	EIRP	Field Strength
2402 - 2480 MHz	5.22 mW (7.17 dBm)	3.07 mW (4.87 dBm)	-
The values were derived from measurement of output power at the antenna port and nominal antenna gain(-2.3dBi) specified by the antenna manufacturer.			

*Even the upper limit of the tolerance on the specifications meet the limits.

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5. Exemption Limits for SAR Evaluation

Documentation Requirements

2.5.1 Exemption Limits for Routine Evaluation — SAR Evaluation

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1.

Table 1: SAR evaluation — Exemption limits for routine evaluation based on frequency and separation distance[4,5]

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

☒ at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

6. Exemption Conclusion:

a) Conclusion: a power level of 0.2mW (includes antenna gain) in BLE mode is EXEMPT.
b) Conclusion: the measured power of 4.87mW (includes antenna gain) in FHSS mode is EXEMPT.
c) Module separation distance is allowed to be ≤5mm.