A Test Lab Techno Corp.

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MPE Report

Test Report No.	:	1901FS12
Applicant	:	Redpine Signals Inc
Product Type	:	Dual Band 802.11 a/b/g/n, Bluetooth 5.0, ZigBee Module
Trade Name	:	Redpine Signals Inc
Model Number	:	M7DB6
Date of Received	:	Oct. 24, 2018
Test Period	:	Dec. 18 ~ Dec. 27, 2018
Date of Issued	:	Jan. 14, 2019
Test Specification	:	ANSI / IEEE Std.C95.1-1992 / IEEE Std. 1528-2013
		47 CFR § 2.1091
		47 CFR § 1.1310
Location of Test Lab.	:	Chang-an Lab.
Test Firm MRA designation number	:	TW0010

1. The test operations have to be performed with cautious behavior, the test results are as attached.
2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
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Approved By : Edison Hu (Edison Hu)

Tested By : Kris Pan (Kris Pan)

Contents

1. Description of Equipment under Test (EUT)

Applicant	Redpine Signals Inc 2107 N.First Street, Suite 680, San Jose, California, 95131-2019, United States					
Manufacturer	Redpine Signals Inc 2107 N.First Street, Suite 680, San Jose, California, 95131-2019, United States					
Product Type	Dual Band 802.11 a/b/g/n, Bluetooth 5.0, ZigBee Module					
Trade Name	Redpine Signals Inc					
Model Number	M7DB6					
FCC ID	XF6-M7DB6					
Frequency Range	Operate Band			Frequency Range (MHz)		
	IEEE 802.11b / 802.11g / 802.11n 2.4 GHz 20 MHz			2412 - 2462		
	IEEE 802.11n 2.4 GHz 40 MHz			2422 - 2452		
	IEEE 802.11a U-NII Band I			5180 - 5240		
	IEEE 802.11a U-NII Band II-A			5260 - 5320		
	IEEE 802.11a U-NII Band II-C			5500 - 5700		
	IEEE 802.11a U-NII Band III			5745 - 5825		
	IEEE 802.11n 5 GHz 20 MHz U-NII Band I			5180 - 5240		
	IEEE 802.11n 5 GHz 20 MHz U-NII Band II-A			5260 - 5320		
	IEEE 802.11n 5 GHz 20 MHz U-NII Band II-C			5500 - 5700		
	IEEE 802.11n 5 GHz 20 MHz U-NII Band III			5745 - 5825		
	IEEE 802.11n 5 GHz 40 MHz U-NII Band I			5190 - 5230		
	IEEE 802.11n 5 GHz 40 MHz U-NII Band II-A			5270 - 5310		
	IEEE 802.11n 5 GHz 40 MHz U-NII Band II-C			5510 - 5670		
	IEEE 802.11n 5 GHz 40 MHz U-NII Band III			5755 - 5795		
	Bluetooth BR/EDR			2402 - 2480		
	Bluetooth LE			2402 - 2480		
	Zigbee			2405 - 2480		
Antenna Information	Model	Type	Connector	Max. Gain (dBi)		
	RSIA7	PCB Trace Antenna	Internal	2402 - 2480	0.712	
				5180 - 5825	1.250	
	GW.71.5153	Dipole Antenna	SMA Reverse	2402 - 2480	Straight	3.3
					Bent	3.8
				5180 - 5825	Straight	4.9
					Bent	5.5
Antenna Delivery	1TX					
RF Evaluation	0.030 mW/cm^2					
Operate Temp. Range	-40 ~ +85°C					

The above equipment was tested by A Test Lab Techno Corp. For compliance with the requirements set forth in 47 CFR § 2.1091 / 47 CFR § 1.1310. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties

2. Human Exposure Assessment

Due to the design and installation of this product, it is not possible to conduct SAR evaluation. This is because client either manufactures or supplies the antenna(s) that will be used in the installation of this product. Therefore, this product will be evaluated as a mobile device per 47 CFR § 1.1310 titled “Radiofrequency radiation exposure limits”, generally referred to as MPE limits.

In 47 CFR § 2.1091, paragraph (b) defines a mobile device as “a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the transmitter’s radiating structure(s) and the body of the user or nearby persons. ” This product is intended to be installed into a vehicle such that the unit is physically secured at one location. In the installation guide supplied with the product,

Client has made the following statement: “IMPORTANT: To meet the FCC’s RF Exposure Guidelines, the antenna should be installed so there is at least 20 cm of separation between the body of the user and nearby persons and the antenna”. Based on the installation of the transceiver and the antenna, the transmitters radiating structure is more than 20 cm from the user. Thus, this product is a “mobile device” as defined in section § 2.1091 paragraph (b).

Exposure evaluation
$$S = \frac{PG}{4\pi R^2}$$ Where S: power density P: power input to the antenna G: power gain of the antenna in the direction of interest relative to an isotropic radiator. R: distance to the center of radiation of the antenna.

3. RF Output Power

Power setting 1_Antenna Type: PCB Trace Antenna

Band	Data Rate (Mbps)	Frequency (MHz)	Average Conducted power (dBm)
IEEE 802.11b	1M	2412.0	**16.55**
		2437.0	16.02
		2462.0	16.14
	2M	2437.0	16.00
	5.5M	2437.0	15.98
	11M	2437.0	15.93
IEEE 802.11g	6M	2412.0	14.37
		2437.0	**17.39**
		2462.0	11.29
	9M	2437.0	17.37
	12M	2437.0	17.35
	18M	2437.0	17.31
	24M	2437.0	17.26
	36M	2437.0	17.23
	48M	2437.0	17.20
	54M	2437.0	17.15
IEEE 802.11n 2.4 GHz 20 MHz	6.5M	2412.0	13.82
		2437.0	**17.60**
		2462.0	10.44
	14.4M	2437.0	17.58
	21.7M	2437.0	17.55
	28.9M	2437.0	17.51
	43.3M	2437.0	17.49
	57.8M	2437.0	17.45
	65M	2437.0	17.43
	72.2M	2437.0	17.40
IEEE 802.11n 2.4 GHz 40 MHz	13.5M	2422.0	10.36
		2437.0	**11.76**
		2452.0	7.76
	30M	2437.0	11.73
	45M	2437.0	11.71
	60M	2437.0	11.69
	90M	2437.0	11.66
	120M	2437.0	11.63
	135M	2437.0	11.60
	150M	2437.0	11.58

Note: The relevant measured result has the offset with cable loss already.

Band	Date Rate (Mbps)	Frequency (MHz)	Average Conducted power (dBm)
IEEE 802.11a	6	5180.0	11.46
		5200.0	**11.83**
		5220.0	11.63
		5240.0	11.55
		5260.0	**11.63**
		5280.0	11.36
		5300.0	11.08
		5320.0	10.82
		5500.0	12.42
		5520.0	12.84
		5540.0	13.19
		5560.0	13.48
		5580.0	13.60
		5660.0	14.16
		5680.0	**14.24**
		5700.0	13.41
		5745.0	14.34
		5765.0	14.38
		5785.0	14.55
		5805.0	14.59
		5825.0	**14.61**
	54	5180.0	11.41
		5200.0	11.81
		5220.0	11.59
		5240.0	11.50
		5260.0	11.60
		5280.0	11.31
		5300.0	11.05
		5320.0	10.76
		5500.0	12.38
		5520.0	12.81
		5540.0	13.15
		5560.0	13.42
		5580.0	13.55
		5660.0	14.12
		5680.0	14.20
		5700.0	13.38
		5745.0	14.01
		5765.0	14.35
		5785.0	14.51
		5805.0	14.55
		5825.0	14.59

Note: The relevant measured result has the offset with cable loss already.

Band	Date Rate (Mbps)	Frequency (MHz)	Average Conducted power (dBm)
IEEE 802.11n 5 GHz 20 MHz	6.5	5180.0	11.30
		5200.0	**12.00**
		5220.0	11.87
		5240.0	11.75
		5260.0	12.16
		5280.0	**12.75**
		5300.0	11.89
		5320.0	11.10
		5500.0	10.89
		5520.0	13.10
		5540.0	13.48
		5560.0	13.86
		5580.0	13.83
		5660.0	14.34
		5680.0	**14.38**
		5700.0	13.63
		5745.0	14.38
		5765.0	14.57
		5785.0	14.56
		5805.0	14.64
		5825.0	**14.68**
	72.2	5180.0	11.25
		5200.0	11.98
		5220.0	11.85
		5240.0	11.70
		5260.0	12.12
		5280.0	12.71
		5300.0	11.84
		5320.0	11.05
		5500.0	10.86
		5520.0	13.07
		5540.0	13.45
		5560.0	13.83
		5580.0	13.80
		5660.0	14.31
		5680.0	14.35
		5700.0	13.60
		5745.0	14.35
		5765.0	14.54
		5785.0	14.53
		5805.0	14.61
		5825.0	14.65

Note: The relevant measured result has the offset with cable loss already.

Band	Date Rate (Mbps)	Frequency (MHz)	Average Conducted power (dBm)
IEEE 802.11n 5 GHz 40 MHz	13.5	5190.0	6.19
		5230.0	**9.88**
		5270.0	**9.40**
		5310.0	5.36
		5510.0	7.57
		5550.0	11.67
		5670.0	**12.54**
		5755.0	12.50
		5795.0	**12.67**
	150	5190.0	6.15
		5230.0	9.85
		5270.0	9.37
		5310.0	5.32
		5510.0	7.54
		5550.0	11.64
		5670.0	12.51
		5755.0	12.46
		5795.0	12.64

Note: The relevant measured result has the offset with cable loss already.

Operate Band	Frequency (MHz)	Packet Type	Average Conducted power (dBm)
Bluetooth BR GFSK	2402.0	DH1	9.06
		DH3	9.09
		DH5	9.11
	2441.0	DH1	9.14
		DH3	9.16
		DH5	9.19
	2480.0	DH1	8.88
		DH3	8.91
		DH5	8.94
Bluetooth EDR π/4-DQPSK	2402.0	2DH1	9.87
		2DH3	9.90
		2DH5	9.92
	2441.0	2DH1	8.90
		2DH3	8.93
		2DH5	8.95
	2480.0	2DH1	8.80
		2DH3	8.83
		2DH5	8.85
Bluetooth EDR 8DPSK	2402.0	3DH1	9.88
		3DH3	9.91
		3DH5	**9.94**
	2441.0	3DH1	9.05
		3DH3	9.07
		3DH5	9.10
	2480.0	3DH1	8.83
		3DH3	8.85
		3DH5	8.87
Bluetooth LE	2402.0	---	11.32
	2440.0		**11.56**
	2480.0		11.43
Bluetooth 2LE	2402.0	---	11.35
	2440.0		10.54
	2480.0		9.19
Bluetooth BLR C2	2402.0	---	11.29
	2440.0		11.54
	2480.0		11.40
Bluetooth BLR C8	2402.0	---	11.26
	2440.0		11.50
	2480.0		11.38
Zigbee	2405.0	---	6.80
	2440.0		**10.08**
	2480.0		8.77

Note: The relevant measured result has the offset with cable loss already.

Power setting 2_Antenna Type: Dipole Antenna

Band	Data Rate (Mbps)	Frequency (MHz)	Average Conducted power (dBm)
IEEE 802.11b	1M	2412.0	**16.40**
		2437.0	15.07
		2462.0	16.10
	2M	2437.0	15.04
	5.5M	2437.0	15.00
	11M	2437.0	14.95
IEEE 802.11g	6M	2412.0	12.05
		2437.0	**17.38**
		2462.0	8.28
	9M	2437.0	17.35
	12M	2437.0	17.33
	18M	2437.0	17.26
	24M	2437.0	17.23
	36M	2437.0	17.20
	48M	2437.0	17.15
	54M	2437.0	17.10
IEEE 802.11n 2.4 GHz 20 MHz	6.5M	2412.0	9.89
		2437.0	**17.71**
		2462.0	7.20
	14.4M	2437.0	17.68
	21.7M	2437.0	17.65
	28.9M	2437.0	17.60
	43.3M	2437.0	17.58
	57.8M	2437.0	17.55
	65M	2437.0	17.53
	72.2M	2437.0	17.50
IEEE 802.11n 2.4 GHz 40 MHz	13.5M	2422.0	7.51
		2437.0	**10.50**
		2452.0	5.45
	30M	2437.0	10.48
	45M	2437.0	10.45
	60M	2437.0	10.41
	90M	2437.0	10.39
	120M	2437.0	10.35
	135M	2437.0	10.33
	150M	2437.0	10.31

Note: The relevant measured result has the offset with cable loss already.

Band	Date Rate (Mbps)	Frequency (MHz)	Average Conducted power (dBm)
IEEE 802.11a	6	5180.0	11.37
		5200.0	**12.05**
		5220.0	12.00
		5240.0	11.95
		5260.0	12.11
		5280.0	12.08
		5300.0	12.00
		5320.0	**12.12**
		5500.0	12.05
		5520.0	12.91
		5540.0	12.82
		5560.0	12.85
		5580.0	12.96
		5660.0	13.31
		5680.0	**13.33**
		5700.0	13.26
		5745.0	**13.65**
		5765.0	13.41
		5785.0	13.40
		5805.0	13.55
		5825.0	13.54
	54	5180.0	11.33
		5200.0	12.03
		5220.0	11.98
		5240.0	11.93
		5260.0	12.08
		5280.0	11.97
		5300.0	12.09
		5320.0	12.10
		5500.0	12.01
		5520.0	12.89
		5540.0	12.80
		5560.0	12.81
		5580.0	12.93
		5660.0	13.30
		5680.0	13.31
		5700.0	13.23
		5745.0	13.63
		5765.0	13.38
		5785.0	13.37
		5805.0	13.52
		5825.0	13.51

Note: The relevant measured result has the offset with cable loss already.

Band	Date Rate (Mbps)	Frequency (MHz)	Average Conducted power (dBm)
IEEE 802.11n 5 GHz 20 MHz	6.5	5180.0	11.15
		5200.0	**11.81**
		5220.0	11.73
		5240.0	11.80
		5260.0	12.08
		5280.0	**12.38**
		5300.0	12.28
		5320.0	12.19
		5500.0	11.18
		5520.0	13.18
		5540.0	13.12
		5560.0	**13.72**
		5580.0	13.64
		5660.0	13.50
		5680.0	13.48
		5700.0	8.87
		5745.0	13.29
		5765.0	13.33
		5785.0	13.37
		5805.0	**13.48**
		5825.0	13.45
	72.2	5180.0	11.12
		5200.0	11.79
		5220.0	11.70
		5240.0	11.77
		5260.0	12.05
		5280.0	12.35
		5300.0	12.25
		5320.0	12.16
		5500.0	11.15
		5520.0	13.15
		5540.0	13.10
		5560.0	13.70
		5580.0	13.61
		5660.0	13.47
		5680.0	13.45
		5700.0	8.84
		5745.0	13.26
		5765.0	13.30
		5785.0	13.34
		5805.0	13.45
		5825.0	13.41

Note: The relevant measured result has the offset with cable loss already.

Band	Date Rate (Mbps)	Frequency (MHz)	Average Conducted power (dBm)
IEEE 802.11n 5 GHz 40 MHz	13.5	5190.0	5.64
		5230.0	**9.52**
		5270.0	**9.72**
		5310.0	6.60
		5510.0	7.19
		5550.0	11.20
		5670.0	**11.14**
		5755.0	11.33
		5795.0	**11.52**
	150	5190.0	5.61
		5230.0	9.50
		5270.0	9.69
		5310.0	6.57
		5510.0	7.16
		5550.0	11.18
		5670.0	11.11
		5755.0	11.30
		5795.0	11.50

Note: The relevant measured result has the offset with cable loss already.

Operate Band	Frequency (MHz)	Packet Type	Average Conducted power (dBm)
Bluetooth BR GFSK	2402.0	DH1	8.59
		DH3	8.61
		DH5	**8.64**
	2441.0	DH1	8.46
		DH3	8.49
		DH5	8.51
	2480.0	DH1	8.03
		DH3	8.06
		DH5	8.09
Bluetooth EDR π/4-DQPSK	2402.0	2DH1	8.27
		2DH3	8.30
		2DH5	8.32
	2441.0	2DH1	8.51
		2DH3	8.53
		2DH5	8.55
	2480.0	2DH1	7.93
		2DH3	7.95
		2DH5	7.98
Bluetooth EDR 8DPSK	2402.0	3DH1	8.51
		3DH3	8.53
		3DH5	8.56
	2441.0	3DH1	8.49
		3DH3	8.51
		3DH5	8.54
	2480.0	3DH1	8.02
		3DH3	8.04
		3DH5	8.06
Bluetooth LE	2402.0	---	9.61
	2440.0		9.86
	2480.0		9.68
Bluetooth 2LE	2402.0	---	9.66
	2440.0		**9.94**
	2480.0		7.39
Bluetooth BLR C2	2402.0	---	9.58
	2440.0		9.84
	2480.0		9.65
Bluetooth BLR C8	2402.0	---	9.55
	2440.0		9.82
	2480.0		9.63
Zigbee	2405.0	---	6.40
	2440.0		5.32
	2480.0		**8.53**

Note: The relevant measured result has the offset with cable loss already.

4. Test Result

Power setting 1_Antenna Type: PCB Trace Antenna

Band	Test mode/ RB/Data rate	Frequency (MHz)	Limit (mw)/cm^2	Distance [R] (cm)	Max Tune-up Power [P] (dBm)	ANT Gain (dBi)	Numeric Gain [G]	Duty Cycle	Power with Duty cycle [TP] (mW)	Power Density [S] (mw)/cm^2
Bluetooth BR/EDR	3M_DH5	2402.0	1	20	10.50	0.712	1.18	1	13.24	0.003
		2441.0	1	20	10.50	0.712	1.18	1	13.24	0.003
		2480.0	1	20	10.50	0.712	1.18	1	13.24	0.003
Bluetooth LE	1M	2402.0	1	20	12.00	0.712	1.18	1	18.7	0.004
		2440.0	1	20	12.00	0.712	1.18	1	18.7	0.004
		2480.0	1	20	12.00	0.712	1.18	1	18.7	0.004
Zigbee	---	2405.0	1	20	10.50	0.712	1.18	1	13.24	0.003
		2440.0	1	20	10.50	0.712	1.18	1	13.24	0.003
		2480.0	1	20	10.50	0.712	1.18	1	13.24	0.003
IEEE 802.11b	1M	2412.0	1	20	17.00	0.712	1.18	1	59.14	0.012
		2437.0	1	20	17.00	0.712	1.18	1	59.14	0.012
		2462.0	1	20	17.00	0.712	1.18	1	59.14	0.012
IEEE 802.11g	6M	2412.0	1	20	17.50	0.712	1.18	1	66.36	0.013
		2437.0	1	20	17.50	0.712	1.18	1	66.36	0.013
		2462.0	1	20	17.50	0.712	1.18	1	66.36	0.013
IEEE 802.11n 2.4 GHz 20 MHz	6.5M	2412.0	1	20	18.00	0.712	1.18	1	74.45	0.015
		2437.0	1	20	18.00	0.712	1.18	1	74.45	0.015
		2462.0	1	20	18.00	0.712	1.18	1	74.45	0.015
IEEE 802.11n 2.4 GHz 40 MHz	13.5M	2422.0	1	20	12.00	0.712	1.18	1	18.7	0.004
		2437.0	1	20	12.00	0.712	1.18	1	18.7	0.004
		2452.0	1	20	12.00	0.712	1.18	1	18.7	0.004

Band	Test mode/ RB/Data rate	Frequency (MHz)	Limit (mw)/cm^2	Distance [R] (cm)	Max Tune-up Power [P] (dBm)	ANT Gain (dBi)	Numeric Gain [G]	Duty Cycle	Power with Duty cycle [TP] (mW)	Power Density [S] (mw)/cm^2
IEEE 802.11a	6	5180.0	1	20	12.00	1.25	1.33	1	21.08	0.004
		5200.0	1	20	12.00	1.25	1.33	1	21.08	0.004
		5220.0	1	20	12.00	1.25	1.33	1	21.08	0.004
		5240.0	1	20	12.00	1.25	1.33	1	21.08	0.004
		5260.0	1	20	12.00	1.25	1.33	1	21.08	0.004
		5280.0	1	20	12.00	1.25	1.33	1	21.08	0.004
		5300.0	1	20	12.00	1.25	1.33	1	21.08	0.004
		5320.0	1	20	12.00	1.25	1.33	1	21.08	0.004
		5500.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5520.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5540.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5560.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5580.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5660.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5680.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5700.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5745.0	1	20	15.00	1.25	1.33	1	42.06	0.008
		5765.0	1	20	15.00	1.25	1.33	1	42.06	0.008
		5785.0	1	20	15.00	1.25	1.33	1	42.06	0.008
		5805.0	1	20	15.00	1.25	1.33	1	42.06	0.008
		5825.0	1	20	15.00	1.25	1.33	1	42.06	0.008

Band	Test mode/ RB/Data rate	Frequency (MHz)	Limit (mw)/cm^2	Distance [R] (cm)	Max Tune-up Power [P] (dBm)	ANT Gain (dBi)	Numeric Gain [G]	Duty Cycle	Power with Duty cycle [TP] (mW)	Power Density [S] (mw)/cm^2
IEEE 802.11n 5 GHz 20 MHz	6.5	5180.0	1	20	12.50	1.25	1.33	1	23.65	0.005
		5200.0	1	20	12.50	1.25	1.33	1	23.65	0.005
		5220.0	1	20	12.50	1.25	1.33	1	23.65	0.005
		5240.0	1	20	12.50	1.25	1.33	1	23.65	0.005
		5260.0	1	20	13.00	1.25	1.33	1	26.54	0.005
		5280.0	1	20	13.00	1.25	1.33	1	26.54	0.005
		5300.0	1	20	13.00	1.25	1.33	1	26.54	0.005
		5320.0	1	20	13.00	1.25	1.33	1	26.54	0.005
		5500.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5520.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5540.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5560.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5580.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5660.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5680.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5700.0	1	20	14.50	1.25	1.33	1	37.48	0.007
		5745.0	1	20	15.00	1.25	1.33	1	42.06	0.008
		5765.0	1	20	15.00	1.25	1.33	1	42.06	0.008
		5785.0	1	20	15.00	1.25	1.33	1	42.06	0.008
		5805.0	1	20	15.00	1.25	1.33	1	42.06	0.008
		5825.0	1	20	15.00	1.25	1.33	1	42.06	0.008
IEEE 802.11n 5 GHz 40 MHz	13.5	5190.0	1	20	10.00	1.25	1.33	1	13.3	0.003
		5230.0	1	20	10.00	1.25	1.33	1	13.3	0.003
		5270.0	1	20	10.00	1.25	1.33	1	13.3	0.003
		5310.0	1	20	10.00	1.25	1.33	1	13.3	0.003
		5510.0	1	20	13.00	1.25	1.33	1	26.54	0.005
		5550.0	1	20	13.00	1.25	1.33	1	26.54	0.005
		5670.0	1	20	13.00	1.25	1.33	1	26.54	0.005
		5755.0	1	20	13.00	1.25	1.33	1	26.54	0.005
		5795.0	1	20	13.00	1.25	1.33	1	26.54	0.005

Power setting 2_Antenna Type: Dipole Antenna

Band	Test mode/ RB/Data rate	Frequency (MHz)	Limit (mw)/cm^2	Distance [R] (cm)	Max Tune-up Power [P] (dBm)	ANT Gain (dBi)	Numeric Gain [G]	Duty Cycle	Power with Duty cycle [TP] (mW)	Power Density [S] (mw)/cm^2
Bluetooth BR/EDR	1M_DH5	2402.0	1	20	9.00	3.80	2.4	1	19.06	0.004
		2441.0	1	20	9.00	3.80	2.4	1	19.06	0.004
		2480.0	1	20	9.00	3.80	2.4	1	19.06	0.004
Bluetooth 2LE	2M	2402.0	1	20	10.50	3.80	2.4	1	26.93	0.005
		2440.0	1	20	10.50	3.80	2.4	1	26.93	0.005
		2480.0	1	20	10.50	3.80	2.4	1	26.93	0.005
Zigbee	---	2405.0	1	20	9.00	3.80	2.4	1	19.06	0.004
		2440.0	1	20	9.00	3.80	2.4	1	19.06	0.004
		2480.0	1	20	9.00	3.80	2.4	1	19.06	0.004
IEEE 802.11b	1M	2412.0	1	20	17.00	3.80	2.4	1	120.28	0.024
		2437.0	1	20	17.00	3.80	2.4	1	120.28	0.024
		2462.0	1	20	17.00	3.80	2.4	1	120.28	0.024
IEEE 802.11g	6M	2412.0	1	20	17.50	3.80	2.4	1	134.96	0.027
		2437.0	1	20	17.50	3.80	2.4	1	134.96	0.027
		2462.0	1	20	17.50	3.80	2.4	1	134.96	0.027
IEEE 802.11n 2.4 GHz 20 MHz	6.5M	2412.0	1	20	18.00	3.80	2.4	1	151.43	0.030
		2437.0	1	20	18.00	3.80	2.4	1	151.43	0.030
		2462.0	1	20	18.00	3.80	2.4	1	151.43	0.030
IEEE 802.11n 2.4 GHz 40 MHz	13.5M	2422.0	1	20	11.00	3.80	2.4	1	30.21	0.006
		2437.0	1	20	11.00	3.80	2.4	1	30.21	0.006
		2452.0	1	20	11.00	3.80	2.4	1	30.21	0.006

Band	Test mode/ RB/Data rate	Frequency (MHz)	Limit (mw)/cm^2	Distance [R] (cm)	Max Tune-up Power [P] (dBm)	ANT Gain (dBi)	Numeric Gain [G]	Duty Cycle	Power with Duty cycle [TP] (mW)	Power Density [S] (mw)/cm^2
IEEE 802.11a	6	5180.0	1	20	12.50	5.50	3.55	1	63.13	0.013
		5200.0	1	20	12.50	5.50	3.55	1	63.13	0.013
		5220.0	1	20	12.50	5.50	3.55	1	63.13	0.013
		5240.0	1	20	12.50	5.50	3.55	1	63.13	0.013
		5260.0	1	20	12.50	5.50	3.55	1	63.13	0.013
		5280.0	1	20	12.50	5.50	3.55	1	63.13	0.013
		5300.0	1	20	12.50	5.50	3.55	1	63.13	0.013
		5320.0	1	20	12.50	5.50	3.55	1	63.13	0.013
		5500.0	1	20	13.50	5.50	3.55	1	79.47	0.016
		5520.0	1	20	13.50	5.50	3.55	1	79.47	0.016
		5540.0	1	20	13.50	5.50	3.55	1	79.47	0.016
		5560.0	1	20	13.50	5.50	3.55	1	79.47	0.016
		5580.0	1	20	13.50	5.50	3.55	1	79.47	0.016
		5660.0	1	20	13.50	5.50	3.55	1	79.47	0.016
		5680.0	1	20	13.50	5.50	3.55	1	79.47	0.016
		5700.0	1	20	13.50	5.50	3.55	1	79.47	0.016
		5745.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5765.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5785.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5805.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5825.0	1	20	14.00	5.50	3.55	1	89.17	0.018

Band	Test mode/ RB/Data rate	Frequency (MHz)	Limit (mw)/cm^2	Distance [R] (cm)	Max Tune-up Power [P] (dBm)	ANT Gain (dBi)	Numeric Gain [G]	Duty Cycle	Power with Duty cycle [TP] (mW)	Power Density [S] (mw)/cm^2
IEEE 802.11n 5 GHz 20 MHz	6.5	5180.0	1	20	12.00	5.50	3.55	1	56.26	0.011
		5200.0	1	20	12.00	5.50	3.55	1	56.26	0.011
		5220.0	1	20	12.00	5.50	3.55	1	56.26	0.011
		5240.0	1	20	12.00	5.50	3.55	1	56.26	0.011
		5260.0	1	20	12.50	5.50	3.55	1	63.13	0.013
		5280.0	1	20	12.50	5.50	3.55	1	63.13	0.013
		5300.0	1	20	12.50	5.50	3.55	1	63.13	0.013
		5320.0	1	20	12.50	5.50	3.55	1	63.13	0.013
		5500.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5520.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5540.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5560.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5580.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5660.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5680.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5700.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5745.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5765.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5785.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5805.0	1	20	14.00	5.50	3.55	1	89.17	0.018
		5825.0	1	20	14.00	5.50	3.55	1	89.17	0.018
IEEE 802.11n 5 GHz 40 MHz	13.5	5190.0	1	20	10.00	5.50	3.55	1	35.5	0.007
		5230.0	1	20	10.00	5.50	3.55	1	35.5	0.007
		5270.0	1	20	10.00	5.50	3.55	1	35.5	0.007
		5310.0	1	20	10.00	5.50	3.55	1	35.5	0.007
		5510.0	1	20	11.50	5.50	3.55	1	50.15	0.010
		5550.0	1	20	11.50	5.50	3.55	1	50.15	0.010
		5670.0	1	20	11.50	5.50	3.55	1	50.15	0.010
		5755.0	1	20	12.00	5.50	3.55	1	56.26	0.011
		5795.0	1	20	12.00	5.50	3.55	1	56.26	0.011

Note:

1. Mobile or fixed location transmitters, minimum separation distance is 20 cm, even if calculations indicate MPE distance is less.
2. The Numeric Gain calculated by 10^(ant. Gain(dBi) /10).
3. Each band max power which perform MPE of any configurations.
4. The MPE results are evaluated by lowest data rate for WLAN.
5. The device operating IEEE 802.11 a/b/g/n mode is 1TX (SISO).
6. The device not support simultaneous transmission.