



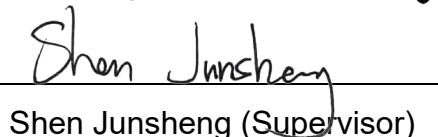
RF EXPOSURE EVALUATION REPORT

APPLICANT : Ricoh Company Ltd
PRODUCT NAME : RICOH Meeting 360 V1
MODEL NAME : E0A8-17
BRAND NAME : RICOH
FCC ID : BBP-WLANG01
STANDARD(S) : FCC 47CFR Part 2(2.1091)
RECEIPT DATE : 2021-09-01
TEST DATE : 2021-09-07 to 2021-09-30
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Change History		
Version	Date	Reason for change
1.0	2022-07-12	First edition



1. Technical Information

Note: Provide by applicant.

1.1 Applicant and Manufacturer Information

Applicant:	Ricoh Company Ltd
Applicant Address:	2-7-1 Izumi, Ebina, Kanagawa 243-0460, Japan
Manufacturer:	Ricoh Company Ltd
Manufacturer Address:	2-7-1 Izumi, Ebina, Kanagawa 243-0460, Japan

1.2 Equipment under Test (EUT) Description

Product Name:	RICOH Meeting 360 V1	
Sample No.:	1#	
Hardware Version:	V0.90	
Software Version:	V1.0	
Frequency Bands:	Bluetooth	2402MHz-2480MHz
	WLAN 2.4GHz	2412MHz-2462MHz
	WLAN 5GHz	5180MHz-5240MHz
		5260MHz-5320MHz
		5500MHz-5720MHz
5745MHz-5825MHz		
Modulation Mode:	Bluetooth	GFSK(1Mbps), $\pi/4$ -DQPSK(EDR 2Mbps), 8-DPSK(EDR 3Mbps)
	WLAN 2.4GHz	DSSS, OFDM
	WLAN 5GHz	OFDM
Antenna Type:	Dipole Antenna	
Antenna Gain:	Bluetooth	2.3dBi
	WLAN 2.4GHz	2.3dBi
	WLAN 5GHz	2.9dBi



1.3 Applied Reference Documents

Leading reference documents for testing:

Identity	Document Title	Method Determination /Remark
FCC 47CFR Part 2(2.1091)	Radio Frequency Radiation Exposure Assessment: mobile devices	No deviation
KDB 447498 D01v06	General RF Exposure Guidance	No deviation

Note 1: Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

Note 2: When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.



2. Device Category and RF Exposure Limit

Per user manual, Based on 47CFR 2.1091, this device belongs to mobile device category with General Population/Uncontrolled exposure.

Mobile Devices:

47CFR 2.1091(b)

For purposes of this section, a mobile device is defined 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 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

General Population/Uncontrolled Exposure:

The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

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)
(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* = Plane-wave equivalent power density



3. RF Output Power

Mode	Channel	Frequency (MHz)	Average Power (dBm)
			GFSK
Bluetooth LE	CH 00	2402	6.47
	CH 19	2440	6.68
	CH 39	2480	7.52
Tune-up Limit			8.00

Mode	Channel	Frequency (MHz)	Average Power (dBm)		
			GFSK	$\pi/4$ -DQPSK	8-DPSK
Bluetooth classic	CH 00	2402	11.83	9.24	9.27
	CH 39	2441	11.64	8.46	8.56
	CH 78	2480	11.21	8.61	8.72
Tune-up Limit			12.00	9.50	9.50

2.4GHz WLAN					
Mode	Channel	Frequency (MHz)	Average Power (dBm)	Tune-up Power	Duty Cycle %
802.11b	CH 1	2412	15.13	15.50	99.11
	CH 7	2442	14.90		
	CH 13	2472	15.07		
802.11g	CH 1	2412	14.79	15.00	98.07
	CH 7	2442	14.65		
	CH 13	2472	14.83		
802.11n (HT20)	CH 1	2412	14.61	15.00	97.93
	CH 7	2442	14.55		
	CH 13	2472	14.69		
802.11n (HT40)	CH 3	2422	15.06	16.00	94.90
	CH 7	2442	15.44		
	CH 11	2462	15.19		



5GHz WLAN					
Mode	Channel	Frequency (MHz)	Average (dBm)	Tune-up Power	Duty Cycle %
802.11a	CH 36	5180	15.03	15.50	98.54
	CH 44	5220	14.58	15.00	
	CH 48	5240	14.49	15.00	
	CH 52	5260	14.03	14.50	
	CH 60	5300	13.12	13.50	
	CH 64	5320	12.93	13.50	
	CH 100	5500	11.75	12.00	
	CH 120	5600	13.04	13.50	
	CH 144	5720	15.26	15.50	
	CH 149	5745	15.31	15.50	
	CH 157	5785	15.76	16.00	
	CH 165	5825	15.87	16.50	

5GHz WLAN					
Mode	Channel	Frequency (MHz)	Average (dBm)	Tune-up Power	Duty Cycle %
802.11n (HT20)	CH 36	5180	14.04	14.50	97.93
	CH 44	5220	13.74	14.50	
	CH 48	5240	13.47	14.00	
	CH 52	5260	13.01	13.50	
	CH 60	5300	12.12	12.50	
	CH 64	5320	11.84	12.50	
	CH 100	5500	10.79	11.50	
	CH 120	5600	12.02	12.50	
	CH 144	5720	14.34	15.00	
	CH 149	5745	14.20	14.50	
	CH 157	5785	14.74	15.00	
		CH 165	5825	14.95	



5GHz WLAN					
Mode	Channel	Frequency (MHz)	Average (dBm)	Tune-up Power	Duty Cycle %
802.11n (HT40)	CH 38	5190	12.78	13.50	96.88
	CH 46	5230	14.26	14.50	
	CH 54	5270	13.37	14.00	
	CH 62	5310	12.54	13.00	
	CH 102	5510	11.47	12.00	
	CH 110	5550	13.18	13.50	
	CH 142	5710	14.69	15.00	
	CH 151	5755	14.78	15.50	
	CH 159	5795	15.30	15.50	

5GHz WLAN					
Mode	Channel	Frequency (MHz)	Average (dBm)	Tune-up Power	Duty Cycle %
802.11ac (VHT20)	CH 36	5180	13.59	14.50	97.42
	CH 44	5220	13.19	14.50	
	CH 48	5240	12.93	13.50	
	CH 52	5260	12.43	13.00	
	CH 60	5300	11.52	12.00	
	CH 64	5320	11.34	12.00	
	CH 100	5500	10.25	10.50	
	CH 116	5580	11.40	12.00	
	CH 144	5720	13.63	14.00	
	CH 149	5745	13.55	14.00	
	CH 157	5785	14.05	14.50	
	CH 165	5825	14.28	14.50	



5GHz WLAN					
Mode	Channel	Frequency (MHz)	Average (dBm)	Tune-up Power	Duty Cycle %
802.11ac (VHT40)	CH 38	5190	13.75	14.00	96.91
	CH 46	5230	13.30	13.50	
	CH 54	5270	12.41	13.00	
	CH 62	5310	11.65	12.00	
	CH 102	5510	10.59	11.50	
	CH 110	5550	12.32	12.50	
	CH 142	5710	13.88	14.50	
	CH 151	5755	13.94	14.50	
	CH 159	5795	14.51	15.00	

5GHz WLAN					
Mode	Channel	Frequency (MHz)	Average (dBm)	Tune-up Power	Duty Cycle %
802.11ac (VHT80)	CH 42	5210	13.30	14.00	93.88
	CH 58	5290	11.88	12.50	
	CH 106	5530	10.60	11.00	
	CH 122	5610	11.65	12.00	
	CH 138	5690	11.65	12.00	
	CH 155	5775	13.33	13.50	

Note 1: According to KDB 447498 Section 4.3, MPE assessment is based on source-based time-averaged maximum conducted output power of the RF channel requiring assessment, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.

Note 2: The output power refers to report (Report No.: SZ21090008W01/W02/W03/W04).

4. RF Exposure Assessment

➤ Standalone Transmission Assessment:

Bands	Frequency (MHz)	Tune-up Power(dBm)	Antenna Gain(dBi)	E.I.R.P. (mW)	Power Density (mW/cm ²)	Limit for MPE (mW/cm ²)
Bluetooth	2402	12.00	2.3	26.92	0.005	1.0
WLAN 2.4GHz	2442	16.00	2.3	67.61	0.013	1.0
WLAN 5GHz	5825	16.50	2.9	87.10	0.017	1.0

Note:

1. The WLAN 2.4G, WLAN 5G and Bluetooth transmitter share the same antenna, Therefore simultaneous transmission assessment is not required.
2. For 5GHz WLAN, only the worst case will be used for calculating the power density.
3. MPE calculate method

$$\text{Power Density} = \text{E.I.R.P.}/4\pi R^2$$

Where: E.I.R.P. = P+G

P = Output Power (dBm)

G = Antenna Gain (dBi)

R = Separation Distance (20cm)

➤ Simultaneous Transmission Assessment:

According to the user manual, both the WLAN and Bluetooth transmitters in the device cannot operate simultaneously, therefore simultaneous transmission analysis is not required.

➤ Conclusion:

According to 47 CFR §2.1091, this device complies with human exposure basic restrictions.



Annex A Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013 and CISPR Publication 22; the FCC designation number is CN1192, the test firm registration number is 226174.

————— END OF REPORT —————