RF Exposure Evaluation Declaration

FCC ID:	T2C-W53H
IC:	10741A- W53H
APPLICANT:	YEALINK(XIAMEN) NETWORK TECHNOLOGY CO.,LTD

Application Type:	C2PC Certification
Product:	DECT IP Phone
Model No.:	W53H
Brand Name:	YEALINK
FCC Classification:	Unlicensed PCS Portable Tx Held to Ear (PUE)
Test Procedure(s):	KDB 447498 D01v06 RSS-102 Issue 5

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Revision History

Report No.	Version	Description	Issue Date	Note
1912RSU059-U3	Rev. 01	Initial Report	03-03-2020	Valid

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	DECT IP Phone
Model No.:	W53H
Brand Name:	YEALINK
Hardware:	W53HMV
Handset Firmware:	61.0.0.0
DECT Version:	v6.0
AC adaptor:	Input: 100~240 V~50/60Hz Output: 5V~0.6A

Note: Change Contents:

1.change the type of antenna, and antenna gain is still 0dBi

2. The circuit parameters are adjusted a litter, which has no effect on RF circuit.

3. Update the hardware version to “61.0.0.0”

1.2. Product Specification Subjective to this Report

Frequency Range	1921.536 ~ 1928.448MHz
Number of Channels	5
Maximum Output Power	17.51dBm
Type of Modulation	Digital (Gaussian Frequency Shift Keying)
Antenna Gain	0dBi
Max Time Slots	24
Active Time Slots	1

2. RF Exposure Evaluation

2.1. FCC Limits

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 Note 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	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

MHz	30	35	40	45	50	mm
150	232	271	310	349	387	SAR Test Exclusion Threshold (mW)
300	164	192	219	246	274	
450	134	157	179	201	224	
835	98	115	131	148	164	
900	95	111	126	142	158	
1500	73	86	98	110	122	
1900	65	76	87	98	109	
2450	57	67	77	86	96	
3600	47	55	63	71	79	
5200	39	46	53	59	66	
5400	39	45	52	58	65	
5800	37	44	50	56	62	

Note: The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] * [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

2.2. ISED RSS-102 Limits

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

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

2.3. Test Result of RF Exposure Evaluation

Product	DECT IP Phone
Test Item	RF Exposure Evaluation

FCC Result:

Test Mode	Frequency Band (MHz)	Maximum EIRP(dBm)	Duty Cycle Factor (dB)	Frame Power (dBm)	SAR Test Exclusion Threshold (mW)
DECT	1921.536 ~ 1928.448	17.51	-13.80	3.71	11

Note 1: Both burst-averaged and calculated frame-averaged powers are included.
Frame-averaged powers were calculated from the measured burst-averaged power by converting the slot powers into linear units and calculating the energy over 24 timeslots
Note 2: Per FCC KDB 447498 D01v06, the SAR exclusion threshold for distances<50mm is defined by the following equation:

$$\frac{Max\ Power\ of\ Channel\ (mW)}{Test\ Separation\ Dist\ (mm)} * \sqrt{Frequency(GHz)} \leq 3.0$$

Based on the maximum conducted power of DECT and the antenna to use separation distance, DECT SAR was not required;
[(2.35mW/5)* √1.924] = 0.65 < 3.0
Note: When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

ISED Result:

Test Mode	Frequency Band (MHz)	Maximum EIRP(dBm)	Duty Cycle Factor (dB)	Frame Power （Tune-up） (dBm)	SAR Test Exclusion Threshold (mW)
DECT	1921.536 ~ 1928.448	17.51	-13.80	4	7

Note 1: Both burst-averaged and calculated frame-averaged powers are included.
Frame-averaged powers were calculated from the measured burst-averaged power by converting the slot powers into linear units and calculating the energy over 24 timeslots
Note: When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Based on the maximum conducted power of DECT and the antenna to use separation distance, DECT SAR was not required;
4dbm=2.51mw< 7mw

The End