Certificate #4312.01

RF EXPOSURE EVALUATION REPORT

Product Name:	Long Range High Performance DECT VoIP Base Station
Trade Mark:	GRANDSTREAM
Model No. / HVIN:	DP755
Report Number:	2305255326RFC-2
Test Standards:	FCC 47 CFR Part 1 Subpart I RSS-102 Issue 5
FCC ID:	YZZDP755
IC:	11964A-DP755
Test Result:	PASS
Date of Issue:	July 7, 2023

Prepared for:

Grandstream Networks, Inc.
126 Brookline Ave., 3rd Floor, Boston, MA 02215, USA

Prepared by:

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Date: July 7, 2023

Version

Version No.	Date	Description
V1.0	July 7, 2023	Original

CONTENTS

1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	Grandstream Networks, Inc.
Address of Applicant:	126 Brookline Ave., 3rd Floor Boston, MA 02215, USA
Manufacturer:	Grandstream Networks, Inc.
Address of Manufacturer:	126 Brookline Ave., 3rd Floor Boston, MA 02215, USA

1.2 EUT INFORMATION

Product Name:	Long Range High Performance DECT VoIP Base Station	
Model No. / HVIN:	DP755	
Trade Mark:	GRANDSTREAM	
DUT Stage:	Identical Prototype	
EUT Supports Function: (Provided by the customer)	DECT:	1 920 MHz to 1 930 MHz
Sample Received Date:	May 25, 2023	

Remark: The above EUT's information was provided by customer. Please refer to the specifications or user's manual for more detailed description.

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

For DECT		
Frequency Band:	1920 MHz to 1930 MHz	
Frequency Range:	1921.536 MHz to 1928.448 MHz	
Equipment Type:	Fixed Part (FP)	
Type of Modulation:	Digital: GFSK	
Number of Channels:	5	
Channel Spacing:	1728 kHz	
Antenna Type:	Antenna 1:	Monopole Antenna
	Antenna 2:	Monopole Antenna
Antenna Gain:	Antenna 1:	2.0 dBi
	Antenna 2:	2.0 dBi
Maximum Peak Power:	18.23 dBm	

1.4 OTHER INFORMATION

Test channels for DECT				
Type of Modulation	**Tx/Rx Frequency**	**Test RF Channel Lists**		
		Lowest(L)	**Middle(M)**	**Highest(H)**
GFSK	1920 MHz to 1930 MHz	Channel 4	Channel 2	Channel 0
		1921.536 MHz	1924.992 MHz	1928.448 MHz

1.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC 47 CFR Part 1 Subpart I
RSS-102 Issue 5

All test items have been performed and recorded as per the above standards

1.6 DEVIATION FROM STANDARDS

None.

1.7 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

2. EQUIPMENT LIST

Please refer to the RF test report.

3. MPE EVALUATION

3.1 REFERENCE DOCUMENTS FOR EVALUATION

No.	Identity	Document Title
1	FCC 47 CFR Part 1 Subpart I	PROCEDURES IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969
2	RSS-102 Issue 5	Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)
3	KDB 447498 D01 General RF Exposure Guidance v06	RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES

3.2 MPE COMPLIANCE REQUIREMENT

3.2.1 Limits

3.2.1.1 FCC 47 CFR Part 1 Subpart I

According to §1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100000	/	/	**1**	30

Note: f = frequency in MHz: * = Plane-wave equivalents power density.

3.2.1.2 RSS-102 Issue 5

According to RSS-102 Issue 5, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

According to RSS-102 Issue 5, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.
RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz[6] and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- 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;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

3.2.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3.3 MPE CALCULATION METHOD

FCC 47 CFR Part 1 Subpart I
S = PG/4πR^2= EIRP/4πR^2
S = power density (in appropriate units, e.g., mw/cm2)
P = power input to the antenna (in appropriate units, e.g., mw)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.
R = 20cm, distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

3.4 MPE CALCULATION RESULTS

Note: *For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.*

3.4.1 For DECT

For DECT function, operating at 1920MHz to 1930 MHz for GFSK.

3.4.1.1 Antenna Type:

Monopole Antenna

3.4.1.2 Antenna Gain:

DECT: 1920MHz to 1930 MHz: 2.0 dBi

3.4.1.3 Results for FCC 47 CFR Part 1 Subpart I

Operating Mode		Freq.	Declared maximum conducted output power	Max. positive tolerance according manufacturer	Antenna Gain	Calculated maximum EIRP	Declared maximum EIRP	MPE Limit	MPE Value
		(MHz)	(dBm)		(dBi)	(dBm)	(mW)	(mw/cm^2)	
SISO	DECT	1921.536	18	1	2.0	21.00	125.8925	1	0.0250
		1924.992	18	1	2.0	21.00	125.8925	1	0.0250
		1928.448	18	1	2.0	21.00	125.8925	1	0.0250

3.4.1.4 Results for RSS-102 Issue 5

Operating Mode		Freq.	Declared maximum conducted output power	Max. positive tolerance according manufacturer	Antenna Gain	Calculated maximum EIRP	Declared maximum EIRP	Declare Limit
		(MHz)	(dBm)		(dBi)	(dBm)	(W)	(W)
SISO	DECT	1921.536	18	1	2.0	21.00	0.1259	2.2978
		1924.992	18	1	2.0	21.00	0.1259	2.3006
		1928.448	18	1	2.0	21.00	0.1259	2.3035

APPENDIX 1 PHOTOS OF TEST SETUP

N/A

APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal Photos.

*** End of Report ***
