

Report No.: SZEM200500754503 Page: 1 of 7

# **RF Exposure Evaluation Report**

Application No.:	SZEM2008007545CR					
Applicant:	Hytera Communications Corporation Limited					
Address of Applicant:	Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, Nanshan District, Shenzhen, China					
Manufacturer:	Hytera Communications Corporation Limited					
Address of	Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, Nanshan					
Manufacturer:	District, Shenzhen, China					
Factory:	Hytera Communications Corporation Limited					
Address of Factory:	Plant No.1, No.2 And No.3, Hytera Hi-Tech Park, No.3 Baolong 4th Road, Baolong Street, Longgang District, Shenzhen, Guangdong					
Product Name:	Base Station Channel Unit(CHU)					
Model No.(EUT):	CHU-P0BA01					
Trade Mark:	Hytera					
FCC ID:	YAMCHU-P0BA01					
Standards:	47 CFR Part 1.1307 (2016)					
	47 CFR Part 1.1310 (2016)					
Date of Receipt:	2020-08-05					
Date of Test:	2020-08-05 to 2020-09-08					
Date of Issue:	2020-09-16					
Test Result :	PASS*					

\* In the configuration tested, the EUT complied with the standards specified above.

Keny. KN

Keny Xu EMC Laboratory Manager



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# 2 Version

Revision Record							
Version	Chapter	Date	Modifier	Remark			
01		2020-09-16		Original			

Authorized for issue by:		
	Tedisonti	
	Edison Li /Project Engineer	-
	Evic Fu	
	Eric Fu /Reviewer	-



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# 4 General Information

# 4.1 General Description of EUT

Power supply:	DC28V		
Cable:	DC cable: less than 300cm unshielded		
	Control cable: 170cm unshielded		
Internal source:	More than 108MHz		
Sample Type:	Fixed device		
Frequency Range:	136MHz to 174MHz		
Modulation Type:	4FSK for Digital		
Channel Separation:	12.5KHz for 4FSK		
Number of Channels:	The equipment is able to operate on any designated channel within the specified frequency range.		
Antenna Type:	External		
Antenna Gain:	7.1dBi		
Classification:	Occupational/ Controlled Environment		



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# 4.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594 No tests were sub-contracted.

# 4.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

#### A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

#### • VCCI

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

#### • FCC – Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

#### Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

# 4.4 Deviation from Standards

None.

# 4.5 Abnormalities from Standard Conditions

None.

# 4.6 Other Information Requested by the Customer

None.



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# 5 **RF Exposure Evaluation**

# 5.1 RF Exposure Compliance Requirement

### 5.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b) TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field Magnetic field strength (V/m) (A/m)		Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
(A) Lim	its for Occupational	I/Controlled Exposu	res	
0.3–3.0 3.0–30 30–300 300–1500 1500–100,000	614 1842/f 61.4	1.63 4.89/f 0.163	*(100) *(900/f2) 1.0 f/300 5	6 6 6 6
(B) Limits	for General Populati	on/Uncontrolled Exp	oosure	
0.3–1.34 1.34–30 30–300 300–1500	614 824/f 27.5	1.63 2.19/f 0.073	*(100) *(180/f <sup>2</sup> ) 0.2 f/1500	30 30 30 30

.....

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $Pd = (Pout^{*}G)/(4^{*} Pi^{*} R^{2})$ 

1500–100,000 .....

Where

Pd = power density in mW/cm<sup>2</sup>

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

The limit of MPE is 1.0 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

### 5.1.2 Test Procedure

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



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### 5.1.3 EUT RF Exposure Evaluation

### 1) Test Results

The best case gain of the antenna is 7.1dBi. 15dB logarithmic terms convert to numeric result is nearly 5.13.

4FSK	136-174MHz						
Frequency (MHz)	Maximun Antenna Gain (dBi)	Maximum Antenna Gain (Numeric)	Peak Output Power (dBm)	Max Tune-up tolerance power (dBm)	Max Tune- up tolerance power (mW)	Power density (mW/cm²)	Minimum Distance to Human body (Approximate, cm)
136.125	7.1	5.13	50	50	100000.00	1.00	203
136.125	7.1	5.13	36.99	37	5011.87	1.00	45.5
151.125	7.1	5.13	50	50	100000.00	1.00	203
151.125	7.1	5.13	36.98	37	5011.87	1.00	45.5
158.125	7.1	5.13	50	50	100000.00	1.00	203
158.125	7.1	5.13	36.98	37	5011.87	1.00	45.5
173.875	7.1	5.13	50	50	100000.00	1.00	203
173.875	7.1	5.13	36.99	37	5011.87	1.00	45.5

50 dBm is the declared maximum rated power, 36.98dBm is the declared low rated power by manufacturer. To satisfy RF exposure requirements, a separation distance of 203 cm or more should be maintained between this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

End of Report



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