



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 Manufacturer: Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, Nanshan 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*
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* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu

Keny Xu
EMC Laboratory Manager



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

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2 Version

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

Authorized for issue by:				
				
		Edison Li /Project Engineer		
				
		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



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.



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 strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(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

Friis Formula

Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

The limit of MPE is 1.0 mW/cm². 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.





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/cm ²)	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

