

FCC Test Report

Report No.: AGC14499231003FR02

FCC ID : 2BCUQ-I66

APPLICATION PURPOSE: Original Equipment

PRODUCT DESIGNATION: SIP Doorphone

BRAND NAME : Fanvil

MODEL NAME : i67, i66

APPLICANT: Fanvil Link Technology Co., LTD

DATE OF ISSUE : Nov. 20, 2023

STANDARD(S) : FCC Part 15 Subpart C

REPORT VERSION: V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



Page 2 of 29

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Nov. 20, 2023	Valid	Initial Release



Table of Contents

1. General Information	4
2. Product Information	5
2.1 Product Technical Description	5
2.2 Test Frequency List	5
2.3 Related Submittal(S) / Grant (S)	ε
2.4 Test Methodology	ε
2.5 Special Accessories	ε
2.6 Equipment Modifications	6
2.7 Antenna Requirement	6
3. Test Environment	7
3.1 Address of The Test Laboratory	7
3.2 Test Facility	7
3.3 Environmental Conditions	8
3.4 Measurement Uncertainty	8
3.5 List of Equipment Used	9
4.System Test Configuration	10
4.1 EUT Configuration	10
4.2 EUT Exercise	10
4.3 Configuration of Tested System	10
4.4 Equipment Used in Tested System	10
4.5 Summary of Test Results	11
5. Description of Test Modes	12
6. Field Strength of Fundamental	13
6.1 Measurement Limits	13
6.3 Field Strength Calculation	15
6.4 Measurement Setup	16
6.5 Measurement Results	17
7. 20 dB Bandwidth Measurement	23
7.1 Provisions Applicable	23
7.2 Measurement Procedure	23
7.3 Measurement Setup	23
7.4 Measurement Results	23
8. AC Power Line Conducted Emission Test	25
8.1 Measurement Limits	25
8.2 Measurement Setup	25
8.3 Preliminary Procedure of Line Conducted Emission Test	26
8.4 Final Procedure of Line Conducted Emission Test	26
8.5 Measurement Results	27
Appendix I: Photographs of Test Setup	29
Appendix II: Photographs of Test EUT Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testin Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC.	g/Inspection
presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of	

Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.



Page 4 of 29

1. General Information

Fanvil Link Technology Co., LTD							
Room 1517, Building G, Hualian City Panorama, 27 Region, Bao'an Distri Shenzhen, China							
Fanvil Link Technology Co., LTD							
Room 1517, Building G, Hualian City Panorama, 27 Region, Bao'an District, Shenzhen, China							
Fanvil Link Technology Co., LTD							
Room 1517, Building G, Hualian City Panorama, 27 Region, Bao'an District, Shenzhen, China							
SIP Doorphone							
Fanvil							
i67							
i66							
All the same except for the model name							
Oct. 20, 2023							
Oct. 20, 2023 to Nov. 20, 2023							
No any deviation from the test method							
Normal							
Pass							
AGCER -FCC-WPT-V1							

Note: The test results of this report relate only to the tested sample identified in this report.

Prepared By Alan Duan Nov. 20, 2023 (Project Engineer) Reviewed By Calvin Liu Nov. 20, 2023 (Reviewer) Approved By Max Zhang

Nov. 20, 2023



Page 5 of 29

2. Product Information

2.1 Product Technical Description

Equipment Type	Tagging systems
Frequency Band	119 kHz to 140 kHz
Operation Frequency	125kHz
Hardware Version	V1.0
Software Version	T0.0.17
Modulation Type	ASK
Number of channels	1
Field Strength of Fundamental	62.10 dB μ V/m (Max)
Antenna Designation	Coil Antenna
Antenna Gain	1.0dBi
Power Supply	DC 12V/2A by POE adapter

2.2 Test Frequency List

Frequency Band	Channel Number	Frequency	
119~140kHz	01	125kHz	



Page 6 of 29

2.3 Related Submittal(S) / Grant (S)

This submittal(s) (test report) is intended for **FCC ID: 2BCUQ-I66**, filing to comply with Part 2, Part 15 of the Federal Communication Commission rules.

2.4 Test Methodology

The tests were performed according to following standards:

No. Identity Document Title			
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations	
2	FCC 47 CFR Part 15	Radio Frequency Devices	
3	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices	

2.5 Special Accessories

Not available for this EUT intended for grant.

2.6 Equipment Modifications

Not available for this EUT intended for grant.

2.7 Antenna Requirement

Standard Requirement

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The non-detachable antenna inside the device cannot be replaced by the user at will. The gain of the antenna is 1.0 dBi.



Page 7 of 29

3. Test Environment

3.1 Address of The Test Laboratory

Laboratory: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

3.2 Test Facility

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

CNAS-Lab Code: L5488

Attestation of Global Compliance (Shenzhen) Co., Ltd. has been assessed and proved to FOLLOW CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories.)

A2LA-Lab Cert. No.: 5054.02

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to follow ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 975832

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files with Registration 975832.

IC-Registration No.: 24842 (CAB identifier: CN0063)

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.



Page 8 of 29

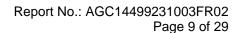
3.3 Environmental Conditions

	Normal Conditions
Temperature range (℃)	15 - 35
Relative humidity range	20% - 75%
Pressure range (kPa)	86 - 106
Power supply	DC 12V

3.4 Measurement Uncertainty

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty		
Uncertainty of Conducted Emission for AC Port	$U_c = \pm 2.9 \text{ dB}$		
Uncertainty of Radiated Emission below 150kHz	$U_c = \pm 4.2 \text{ dB}$		
Uncertainty of Radiated Emission below 30MHz	$U_c = \pm 3.8 \text{ dB}$		
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 3.9 \text{ dB}$		
Uncertainty of Occupied Channel Bandwidth	U _c = ±2 %		





3.5 List of Equipment Used

• R	RF Conducted Test System							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)	
\boxtimes	AGC-ER-E036	Spectrum Analyzer	Agilent	N9020A	MY49100060	2023-06-01	2024-05-31	
\boxtimes	N/A	RF Connection Cable	N/A	2#	N/A	Each time	N/A	

• F	Radiated Spurious Emission							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)	
	AGC-EM-E046	EMI Test Receiver	R&S	ESCI	10096	2023-02-18	2024-02-17	
\boxtimes	AGC-EM-E116	EMI Test Receiver	R&S	ESCI	100034	2023-06-03	2024-06-02	
\boxtimes	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2023-06-01	2024-05-31	
\boxtimes	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2022-03-12	2024-03-11	
\boxtimes	AGC-EM-E001	Wideband Antenna	SCHWARZBECK	VULB9168	D69250	2023-05-11	2025-05-10	
\boxtimes	AGC-EM-E029	Broadband Ridged Horn Antenna	ETS	3117	00034609	2023-03-23	2024-03-22	
\boxtimes	AGC-EM-E082	Horn Antenna	SCHWARZBECK	BBHA 9170	#768	2021-10-31	2023-10-30	
\boxtimes	AGC-EM-E146	Pre-amplifier	ETS	3117-PA	00246148	2022-08-04	2024-08-03	
\boxtimes	AGC-EM-A119	2.4G Filter	SongYi	N/A	N/A	2023-06-01	2024-05-31	
\boxtimes	AGC-EM-A138	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2024-06-08	
	AGC-EM-A139	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2024-06-08	

• A	AC Power Line Conducted Emission								
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)		
\boxtimes	AGC-EM-E045	EMI Test Receiver	R&S	ESPI	101206	2023-06-03	2024-06-02		
	AGC-EM-E023	AMN	R&S	100086	ESH2-Z5	2023-06-03	2024-06-02		
	AGC-EM-A130	6dB Attenuator	Eeatsheep	LM-XX-6-5W	DC-6GZ	2023-06-09	2024-06-08		

• Tes	Test Software							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Version Information			
\boxtimes	AGC-EM-S001	CE Test System	R&S	ES-K1	V1.71			
\boxtimes	AGC-EM-S003	RE-Test System	FARA	EZ-EMC	VRA-03A			
\boxtimes	AGC-ER-S012	BT/WIFI-Test System	Tonscend	JS1120-2	2.6			
\boxtimes	AGC-EM-S011	RSE Test System	Tonscend	TS+-Ver2.1(JS36-RSE)	4.0.0.0			



Page 10 of 29

4. System Test Configuration

4.1 EUT Configuration

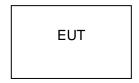
The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT Exercise

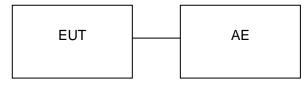
The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

4.3 Configuration of Tested System

Radiated Emission Configure:



Conducted Emission Configure:



4.4 Equipment Used in Tested System

The following peripheral devices and interface cables were connected during the measurement:

☐ Test Accessories Come From The Laboratory

No.	Equipment	Model No.	Manufacturer	Specification Information	Cable
1	POE Adapter	N/A	SA-POE4800300	Input: AC 100V-240V 50/60Hz 0.35A Output: DC 12V/2A	

☐ Test Accessories Come From The Manufacturer

No.	Equipment	Model No.	Manufacturer	Specification Information	Cable
					



Page 11 of 29

4.5 Summary of Test Results

Item	FCC Rules	Description Of Test	Result
1	§15.203	Antenna Equipment	Pass
2	§15.209(a)(f)	Radiated Spurious Emission	Pass
3	§15.215(c)	20dB Bandwidth	Pass
4	§15.205(a)	Restricted Bands of Operation	Pass
5	§15.207	AC Power Line Conducted Emission	Pass



Page 12 of 29

5. Description of Test Modes

Summary table of Test Cases				
Equipment type / Modulation				
Test Item	RFID_ASK			
Radiated &Conducted Test Cases	Mode 1: RFID Tx_125 kHz(POE adapter)			
AC Conducted Emission	Mode 1: RFID Normal Operation (POE adapter)			

Note:

- 1. Only the result of the worst case was recorded in the report, if no other cases.
- 2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- 3. For Conducted Test method, a temporary antenna connector is provided by the manufacture.



Page 13 of 29

6. Field Strength of Fundamental

6.1 Measurement Limits

Test Requirement:	FCC Part15 C Section	FCC Part15 C Section 15.209						
Test Method:	ANSI C63.10:2013	ANSI C63.10:2013						
Test Frequency Range:	9kHz to 1GHz	9kHz to 1GHz						
Test site:	Measurement Dista	Measurement Distance: 3m						
	Frequency	Detector	RBW	VBW	Value			
	9kHz-150kHz	Quasi-peak	200Hz	600Hz	Quasi-peak			
Receiver setup:	150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak			
Receiver Setup.	30MHz-1GHz	Quasi-peak	100kHz	300kHz	Quasi-peak			
	Above 1CHz	Peak	1MHz	3MHz	Peak			
	Above 1GHz	Peak	1MHz	10Hz	Average			

Limits for frequency below 30MHz

Frequency	Limit (µV /m)	Measurement Distance(m)	Remark
0.009-0.490	2400/F(kHz)	300	Quasi-peak Value
0.490-1.705	24000/F(kHz)	30	Quasi-peak Value
1.705-30	30	30	Quasi-peak Value

Limits for frequency Above 30MHz

Frequency	Limit (dBµV/m @3m)	Remark
30MHz-88MHz	40.00	Quasi-peak Value
88MHz-216MHz	43.50	Quasi-peak Value
216MHz-960MHz	46.00	Quasi-peak Value
960MHz-1GHz	54.00	Quasi-peak Value
Above 1GHz	54.00	Average Value
Above IGHZ	74.00	Peak Value

Remark: (1) Emission level $dB\mu V = 20 \log Emission level \mu V/m$

- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) Distance Is The Distance In Meters Between The Measuring Instrument, Antenna And The Closest Point Of Any Part Of The Device Or System.



Page 14 of 29

6.2 Measurement Procedure

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
- 8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.



Page 15 of 29

6.3 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any), Average Factor (optional) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG - AV

where $FS = Field Strength in dB\mu V/m$

RA = Receiver Amplitude (including preamplifier) in dBµV

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB/m AG = Amplifier Gain in dB AV = Average Factor in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

FS = RR + LF where FS = Field Strength in $dB\mu V/m$ RR = RA - AG - AV in $dB\mu V$ LF = CF + AF in dB

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB/m and cable factor of 1.6 dB are added. The amplifier gain of 29 dB and average factor of 5 dB are subtracted, giving a field strength of 27 dB μ V/m.

This value in dBµV/m was converted to its corresponding level in µV/m.

 $RA = 52.0 dB\mu V/m$

AF = 7.4 dB/m $RR = 18.0 \text{ dB}\mu\text{V}$ CF = 1.6 dB LF = 9.0 dB

AG = 29.0 dBAV = 5.0 dB

FS = RR + LF

 $FS = 18 + 9 = 27 dB\mu V/m$

Level in μ V/m = Common Antilogarithm [(27 dB μ V/m)/20] = 22.4 μ V/m

Magnetic field strength calculation (9 kHz – 30 MHz)

When the limit is in terms of magnetic field, the following equation applies:

 $H[dB(\mu A/m)] = V[dB(\mu V)] + LC[dB] - GPA[dB] + AFH[dB(S/m)]$

Where,

H is the magnetic field strength (to be compared with the limit),

V is the voltage level measured by the receiver or spectrum analyzer,

LC is the cable loss,

GPA is the gain of the preamplifier (if used), and

AFH is the magnetic antenna factor.

If the "electrical" antenna factor is used instead, the above equation becomes:

 $H[dB(\mu A/m)] = V[dB(\mu V)] + LC[dB] - GPA[dB] + AFE[dB(m-1)] - 51.5[dB\Omega]$

where AFE is the "electric" antenna factor, as provided by the antenna calibration laboratory.

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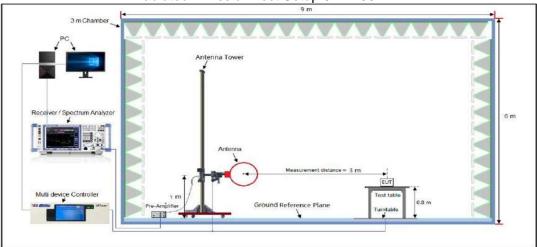
 ${\bf Attestation\ of\ Global\ Compliance (Shenzhen) Std\ \&\ Tech\ Co.,\ Ltd}$

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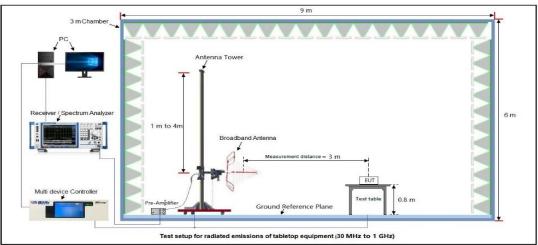


6.4 Measurement Setup

Radiated Emission Test Setup 9kHz-30MHz



Radiated Emission Test Setup 30MHz-1000MHz



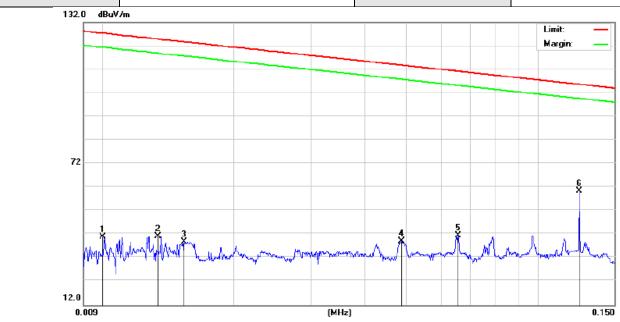
The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.205 limits.



6.5 Measurement Result

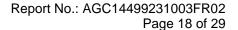
Electric Field Test in The Frequency Range 9kHz-150kHz

EUT Name	SIP Doorphone	Model Name	i67
Temperature	22.6 °C	Relative Humidity	58.4 %
Pressure	960hPa	Test Voltage	DC 12V
Test Mode	Mode 1	Antenna	Face



Ν	lo. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dΒ	dBuV/m	dB/m	d₿	Detector
	1	0.0100	3.05	37.90	40.95	127.4	-86.45	peak
	2	0.0134	3.96	37.16	41.12	124.8	-83.75	peak
	3	0.0154	2.07	36.73	38.80	123.6	-84.87	peak
	4	0.0485	8.99	30.17	39.16	113.7	-74.60	peak
	5	0.0656	12.91	28.70	41.61	111.1	-69.55	peak
	6 *	0.1246	32.83	27.67	60.50	105.6	-45.12	peak

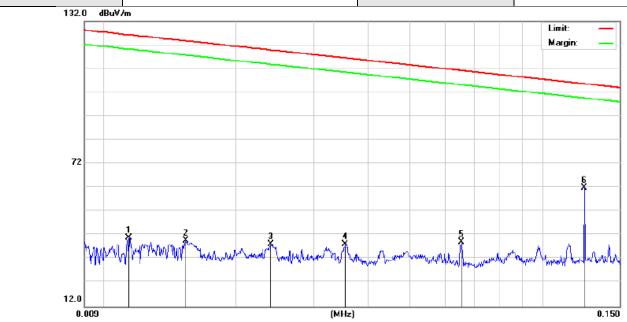
Result: Pass





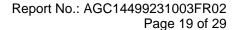
Electric Field Test in The Frequency Range 9kHz-150kHz

EUT Name	SIP Doorphone	Model Name	i67
Temperature	22.6 °C	Relative Humidity	58.4 %
Pressure	960hPa	Test Voltage	DC 12V
Test Mode	Mode 1	Antenna	Side



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBuV	dB	dBuV/m	dB/m	dΒ	Detector
1	0.0114	3.37	37.60	40.97	126.2	-85.30	peak
2	0.0154	3.10	36.73	39.83	123.6	-83.84	peak
3	0.0240	3.32	34.86	38.18	119.8	-81.66	peak
4	0.0354	5.58	32.57	38.15	116.4	-78.33	peak
5	0.0652	10.54	28.73	39.27	111.2	-71.94	peak
6 *	0.1246	34.43	27.67	62.10	105.6	-43.52	peak

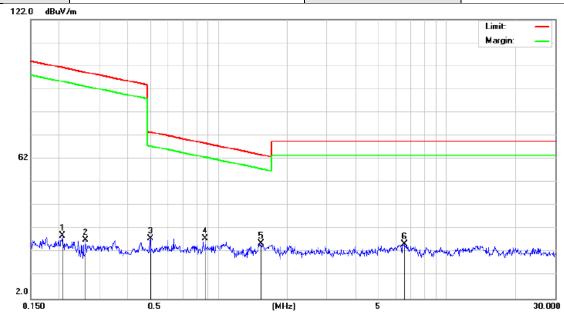
Result: Pass





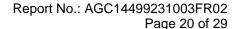
Electric Field Test in The Frequency Range 150kHz-30MHz

EUT Name	SIP Doorphone	Model Name	i67
Temperature	22.6 °C	Relative Humidity	58.4 %
Pressure	960hPa	Test Voltage	DC 12V
Test Mode	Mode 1	Antenna	Face



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBuV	dΒ	dBuV/m	dB/m	dΒ	Detector
1	0.2061	2.72	26.57	29.29	101.2	-71.98	peak
2	0.2615	1.40	25.82	27.22	99.22	-72.00	peak
3	0.5020	2.47	25.40	27.87	73.59	-45.72	peak
4	0.8757	2.76	25.26	28.02	68.76	-40.74	peak
5 *	1.5355	0.78	24.99	25.77	63.88	-38.11	peak
6	6.5227	1.91	23.62	25.53	69.54	-44.01	peak

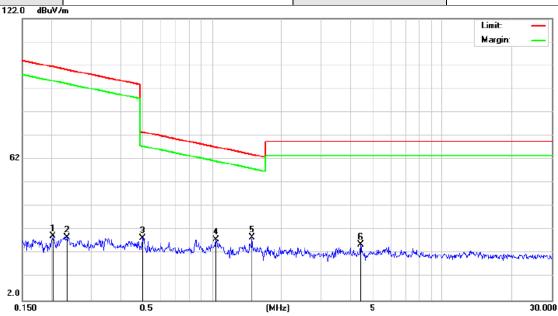
Result: Pass





Electric Field Test in The Frequency Range 150kHz-30MHz

EUT Name	SIP Doorphone	Model Name	i67
Temperature	22.6 °C	Relative Humidity	58.4 %
Pressure	960hPa	Test Voltage	DC 12V
Test Mode	Mode 1	Antenna	Side



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBuV	dΒ	dBuV/m	dB/m	d₿	Detector
1	0.2038	2.94	26.60	29.54	101.3	-71.83	peak
2	0.2353	2.72	26.17	28.89	100.1	-71.24	peak
3	0.4994	3.29	25.40	28.69	73.63	-44.94	peak
4	1.0427	2.91	25.18	28.09	67.24	-39.15	peak
5 *	1.4953	3.76	25.00	28.76	64.11	-35.35	peak
6	4.4305	2.15	23.62	25.77	69.54	-43.77	peak

Result: Pass

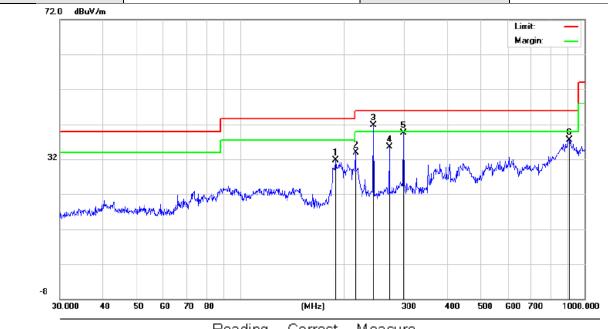
Notes:

- 1. Quasi-Peak detector is used for frequency below 30MHz.
- 2. Negative value in the margin column shows emission below limit.
- 3. All measurements were made with 0.6m loop antenna at 3m distance. All emissions are below the QP limit.
- 4. Corr. Factor= Antenna Factor (dB/m) + Cable Loss (dB)
- 5. Loop antenna is used for the emission under 30MHz.



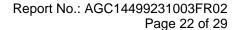
Radiated Emission at 30MHz-1000MHz Test Result

EUT Name	SIP Doorphone Mod		i67
Temperature	23.8°C	Relative Humidity	61.5 %
Pressure	960hPa	Test Voltage	DC 12V
Test Mode	Mode 1	Antenna	Horizontal



	No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
			MHz	dBuV	dB	dBuV/m	dB/m	d₿	Detector
	1		189.7384	18.35	13.32	31.67	43.50	-11.83	peak
	2		216.7828	19.53	14.42	33.95	46.00	-12.05	peak
	3	*	244.2321	26.47	15.27	41.74	46.00	-4.26	peak
-	4		271.3245	20.56	14.86	35.42	46.00	-10.58	peak
	5		298.2681	23.09	16.36	39.45	46.00	-6.55	peak
	6		903.3093	6.14	31.34	37.48	46.00	-8.52	peak
_									

Result: Pass





Radiated Emission at 30MHz-1000MHz Test Result

EUT Name	SIP Doorphone	Model Name	i67
Temperature	23.8°C	Relative Humidity	61.5 %
Pressure	960hPa	Test Voltage	DC 12V
Test Mode	Mode 1	Antenna	Vertical



-									
	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
			MHz	dBu∀	dΒ	dBuV/m	dB/m	d₿	Detector
	1	*	40.4172	18.29	16.90	35.19	40.00	-4.81	peak
Ī	2		51.1208	14.62	17.01	31.63	40.00	-8.37	peak
	3		91.4949	17.55	15.35	32.90	43.50	-10.60	peak
-	4		130.8369	13.32	17.97	31.29	43.50	-12.21	peak
	5		195.1365	17.04	18.05	35.09	43.50	-8.41	peak
	6	2	244.2321	20.73	16.58	37.31	46.00	-8.69	peak
_									

Result: Pass

Note: 1. Factor=Antenna Factor + Cable loss, Over=Measurement-Limit.

- 2. All test modes had been pre-tested. The mode 1 is the worst case and recorded in the report.
- 3. The "Factor" value can be calculated automatically by software of measurement system.



Page 23 of 29

7. 20 dB Bandwidth Measurement

7.1 Provisions Applicable

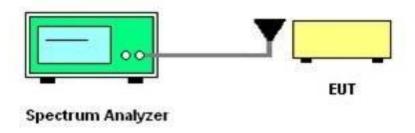
N/A

7.2 Measurement Procedure

Set the parameters of SPA as below:

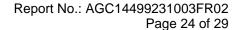
- 1. The spectrum analyzer connected via a receive antenna placed near the EUT in peak Max hold mode.
- 2. Centre frequency = Operation Frequency
- 3. The resolution bandwidth of 300 Hz and the video bandwidth of 10 kHz were used.
- 4. Span: 3kHz, Sweep time: Auto
- 5. Set the EUT to continue transmitting mode. Allow the trace to stabilize. Use the "N dB down" function of SPA to define the bandwidth.
- 6. Measured the spectrum width with power higher than 20dB below carrier.
- 7. Measured the 99% OBW.
- 8. Record the plots and Reported.

7.3 Measurement Setup



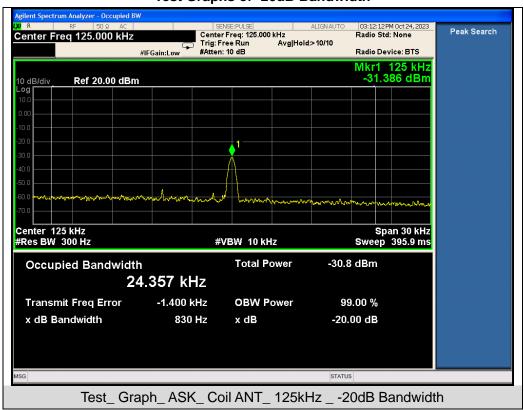
7.4 Measurement Result

	Test Data of Occupied Bandwidth and -20dB Bandwidth							
Test Mode	Test Channel (kHz)	99% Occupied Bandwidth (kHz)	-20dB Bandwidth (kHz)	Limits (kHz)	Pass or Fail			
ASK	125	24.357	0.830	N/A	Pass			





Test Graphs of -20dB Bandwidth





8. AC Power Line Conducted Emission Test

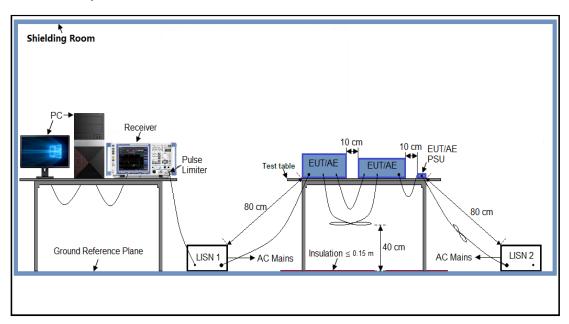
8.1 Measurement Limits

Frequency Range	Maximum RF Line Voltage				
Frequency Range	Q.P. (dBμV)	Average (dBμV)			
150kHz~500kHz	66-56	56-46			
500kHz~5MHz	56	46			
5MHz~30MHz	60	50			

Note:

- 1. The lower limit shall apply at the transition frequency.
- 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

8.2 Measurement Setup





Page 26 of 29

8.3 Preliminary Procedure of Line Conducted Emission Test

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipment received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received DC 24V power from adapter which received AC120V/60Hz power from a LISN.
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

8.4 Final Procedure of Line Conducted Emission Test

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- 2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less 2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- The test data of the worst case condition(s) was reported on the Summary Data page.



8.5 Measurement Result

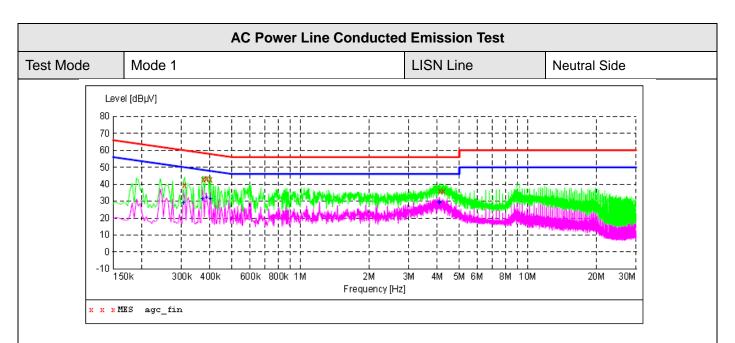
		AC Power	Line Cond	lucted Er	mission Tes	st	
Test Mode	Mode 1			LI	SN Line	Н	lot Side
	evel [dBµV]			•			
80							
70	-		·	<u></u>			
60		<u> </u>	<u> </u>	<u> </u>		1 1 1	
50	 	+		 		111	
40 30			A heid brekennen	and the same	بالسال المسال ١		والمرابا الماليال
20		AND MARKET PROPERTY	. A salamadan				- Arthrodon
10							Annual Company
0		+	· 				
-10	150k 300k 400k	600k 800k		2M 3M	4M 5M 6M	8M 10M	20M 30M
			Frequ	Jency [Hz]			
хх	MES agc_fin						
L	era citoriaria	prema	. !! ====	fir"			
r.	TEASUREMENT	VE SOUL	: " <i>ag</i> c_	T 111			
2	023/11/2 14:4						
	Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detect	or Line
	P1112	αυμν	uв	αυμν	ив		
	0.378000	39.40	6.1	58	18.9	QP	L1
	0.386000	39.80	6.1	58	18.3	QP	L1
	0.394000 0.406000	39.90 39.40	6.1 6.1	58 58	18.1 18.3	QP OP	L1 L1
	4.122000	39.40 34.60	6.3	56	21.4	QP QP	ьт Г
	4.358000	33.90	6.3	56	22.1	QP	L1
M	TEASUREMENT	RESULT	: "aac	fin2"			
				•			
2	023/11/2 14:4 Frequency	43 Level	Transd	Limit	Margin	Detect	or Line
	MHz	dΒμV	dB	dΒμV	dB		
	0.378000	28.80	6.1	48	19.5	AV	L1
	0.386000 0.394000	29.10 29.40	6.1 6.1	48 48	19.0 18.6	AV AV	L1 L1
	3.910000	26.20	6.3	46	19.8	AV	L1
	3.938000	26.50	6.3	46	19.5	AV	L1
	4.026000	27.00	6.3	46	19.0	AV	L1

Result: Pass

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MEASUREMENT RESULT: "agc_fin"

2023/11/2 14:40

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.310000	39.50	6.1	60	20.5	QP	N
0.374000	42.80	6.1	58	15.6	QP	N
0.386000	43.20	6.1	58	14.9	QP	N
0.402000	42.90	6.1	58	14.9	QP	N
4.110000	35.90	6.3	56	20.1	QP	N
4.262000	35.90	6.3	56	20.1	QP	N

MEASUREMENT RESULT: "agc_fin2"

2023/11/2 14:40

 Frequency	Level	Transd	Limit	Margin	Detector	Line
MHz	dBµV	dB	dBuV	dB	20000002	11110
0.306000	28.60	6.1	50	21.5	AV	N
0.370000	31.40	6.1	49	17.1	AV	N
0.386000	32.20	6.1	48	15.9	AV	N
0.402000	31.20	6.1	48	16.6	AV	N
4.082000	28.90	6.3	46	17.1	AV	N
4.094000	29.20	6.3	46	16.8	AV	N

Result: Pass

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Page 29 of 29

Appendix I: Photographs of Test Setup

Refer to the Report No.: AGC14499231003AP02

Appendix II: Photographs of Test EUT

Refer to the Report No.: AGC14499231003AP03

----End of Report-----



Conditions of Issuance of Test Reports

- 1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").
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- 3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
- 4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
- 5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
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- 7.Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
- 8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
- 9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.