

## InnoComm Mobile Technology Corp.

## **TEST REPORT**

**REPORT NUMBER** 

181200219TWN-001

**ISSUE DATE** 

Jan. 28, 2019

**PAGES** 

28

**DOCUMENT CONTROL NUMBER** 

© 2019 INTERTEK





Page: 1 of 28

# Radio Spectrum TEST REPORT

Applicant:	InnoComm Mobile Technology Corp. 3F, No. 6, Hsin Ann Rd., Hsinchu Science Park, Hsinchu 30078, Taiwan
Product:	Wireless console module
Model No.:	Foenix_AN, Foenix_A, Foenix_N, Foenix
Brand Name:	InnoComm
FCC ID:	YAI-CIC22101
Test Method/ Standard:	47 CFR FCC Part 15.249 & ANSI C63.10 2013
Test By:	Intertek Testing Services Taiwan Ltd.,
	Hsinchu Laboratory
	No. 11, Lane 275, Ko-Nan 1 Street, Chia-Tung Li,
	Shiang-Shan District, Hsinchu City, Taiwan



Durant Wei



Prepared and Checked by:

Approved by:

John Cheng

Engineer

Durant Wei Engineer

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.



Page: 2 of 28

## **Revision History**

Report No.	Issue Date	Revision Summary
181200219TWN-001	Jan. 28, 2019	Original report



## **Table of Contents**

Summary of Tests	4
1. General Information	5 5 5
2. Test specifications	6
3. 20dB Bandwidth test	7 7
4. Radiated emission test FCC 15.249 (C) 4.1 Operating environment 4.2 Test setup & procedure 4.3 Emission limit 4.3.1 Fundamental and harmonics emission limits 4.3.2 General radiated emission limits 4.4 Radiated spurious emission test data 4.4.1 Measurement results: frequency range from 9 kHz to 30 MHz 4.4.2 Measurement results: frequencies equal to or less than 1 GHz 4.4.3 Measurement results: frequency above 1GHz 4.4.4 Measurement results: Fundamental	9 11 12 12 14 16
5. Radiated emission on the band edge FCC 15.249(d)	9
6. AC Power Line Conducted Emission       2         6.1 Measuring instrument setting       2         6.2 Test Procedure       2         6.3 Test Diagram       2         6.4 Limit       2         6.5 Operating Environment Condition       2         6.6 Test Results       2	22 22 23 23
Appendix A: Test equipment list	:6
Appendix B: Measurement Uncertainty2	28



Page: 4 of 28

## **Summary of Tests**

Test	Reference	Results
20dB Bandwidth	15.215(c)	Pass
Radiated Emission test	15.249(c), 15.209	Pass
Emission on the Band Edge	15.249(d)	Pass
Conducted Emission of AC Power	15.207	Pass
Antenna Requirement	15.203	Pass



Page: 5 of 28

#### 1. General Information

#### 1.1 Identification of the EUT

Product:	Wireless console module	
Model No.:	Foenix_AN	
Operating Frequency:	2402 MHz, 2440 MHz, 2480 MHz	
Channel Number:	3 channels	
Access scheme:	GFSK	
Rated Power:	DC 12V from adapter	
Power Cord:	N/A	
Sample receiving date:	Dec. 20, 2018	
Sample condition:	Workable	
Test Date(s):	Jan. 05, 2019 ~ Jan. 22, 2019	

#### 1.2 Additional information about the EUT

The customer confirmed the models listed as below were series model to model Foenix\_AN (EUT), the difference between main model and series model are listed as below.

Model Number	Different
Foenix_AN	Wi-Fi 2.4G(2T2R )/5G ( B1+B4 2T2R) / BT 2.1+4.2 / ANT+ / NFC
Foenix_A	Wi-Fi 2.4G(2T2R )/5G ( B1+B4 2T2R) / BT 2.1+4.2 /ANT+
Foenix_N	Wi-Fi 2.4G(2T2R )/5G ( B1+B4 2T2R) / BT 2.1+4.2 /NFC
Foenix	Wi-Fi 2.4G(2T2R )/5G ( B1+B4 2T2R) / BT 2.1+4.2

#### 1.3 Antenna description

Antenna Gain : 4.74 dBi

Antenna Type : PCB Antenna

Connector Type : I-PEX

#### 1.4 Peripherals equipment

No.	Model no.	Specification
Adapter	EA10681G-120	I/P: 100-240V~, 2.0A,50-60Hz
-		O/P: 12V, 4.16A



Page: 6 of 28

#### 2. Test specifications

#### 2.1 Test standard

The EUT was performed according to the procedures in FCC Part 15 Subpart C Paragraph 15.249 for non-spread spectrum devices.

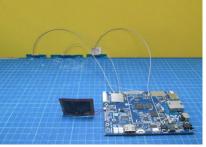
The test of radiated measurements according to FCC Part15 Section 15.33(a) had been conducted and the field strength of this frequency band were all meet limit requirement, thus we evaluate the EUT pass the specified test.

#### 2.2 Operation mode

TX mode: EUT use 「ANTware II-v.4.1.exe」 entering test mode, and Touchscreen to change different channel.

The signal is maximized through rotation and placement in the three orthogonal axes.







X axis Y axis Z axis

After verifying three axes, we found the maximum electromagnetic field was occurred at Y axis. The final test data was executed under this configuration.



Page: 7 of 28

#### 3. 20dB Bandwidth test

#### 3.1 Operating environment

Temperature:	25	$^{\circ}\!\mathbb{C}$
Relative Humidity:	50	%
Atmospheric Pressure:	1008	hPa

#### 3.2 Test setup & procedure

- Step 1: The 20dB bandwidth was measured using a 50 ohm spectrum analyzer
- Step 2: The span range for the SA display shall be between two times and five times the OBW.
- Step 3: The nominal IF filter bandwidth (3 dB RBW) should be approximately 1 % to 5 % of the OBW, unless otherwise specified, depending on the applicable requirement.
- Step 4: The test was performed at 1 channel. The maximum 20dB modulation bandwidth is in the following Table.

#### 3.3 Measured data of modulated bandwidth test results

**Single TX** 

Mode	Frequency (MHz)	20dB Occupied Bandwidth (MHz)
	2402	0.899
ANT+	2440	0.984
	2480	1.102

Please see the plot below.

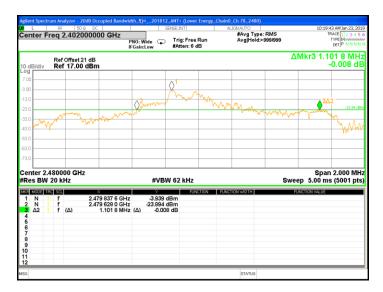
#### 20dB Bandwidth @ ANT+ Channel Low

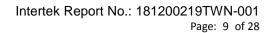


20dB Bandwidth @ ANT+ Channel Mid



20dB Bandwidth @ ANT+ Channel High







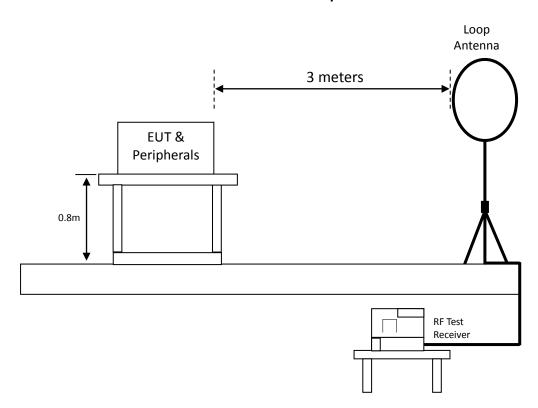
#### 4. Radiated emission test FCC 15.249 (C)

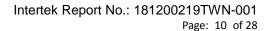
## **4.1 Operating environment**

Temperature:	25	$^{\circ}\!\mathbb{C}$
Relative Humidity:	50	%
Atmospheric Pressure:	1008	hPa

#### 4.2 Test setup & procedure

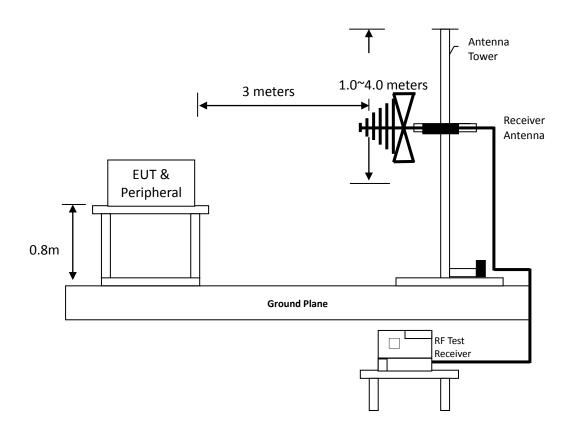
## Radiated emission from 9kHz to 30MHz uses Loop Antenna:



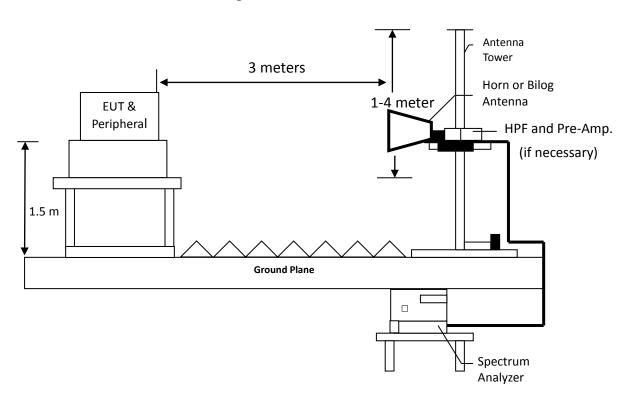




#### Radiated emission below 1GHz using Bilog Antenna



#### Radiated emission above 1GHz using Horn Antenna





Page: 11 of 28

Radiated emissions were invested cover the frequency range from 30MHz to 1000MHz using a receiver RBW of 120kHz record QP reading, and the frequency over 1GHz using a spectrum analyzer RBW of 1MHz and 10Hz VBW record Average reading. (15.209 paragraph), the Peak reading (1 MHz RBW/ 3 MHz VBW) recorded also on the report.

The EUT for testing is arranged on a turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter.

The measurement for radiated emission will be done at the distance of three meters unless the signal level is too low to measure at that distance. In the case of the reading under noise floor, a pre-amplifier is used and/or the test is conducted at a closer distance. And then all readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance.

#### 4.3 Emission limit

#### 4.3.1 Fundamental and harmonics emission limits

Frequency	Field Strength of Fundamental		Field Strengt	h of Harmonics
(MHz)	(mV/m@3m)	(dBuV/m@3m)	(uV/m@3m)	(dBuV/m@3m)
2400-2483.5	50	94	500	54



Page: 12 of 28

#### 4.3.2 General radiated emission limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

Frequency MHz	15.209 Limits (dBμV/m@3m)
30-88	40
88-216	43.5
216-960	46
Above 960	54

#### Remark:

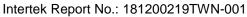
- 1. In the above table, the tighter limit applies at the band edges.
- 2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

#### 4.4 Radiated spurious emission test data

#### 4.4.1 Measurement results: frequency range from 9 kHz to 30 MHz

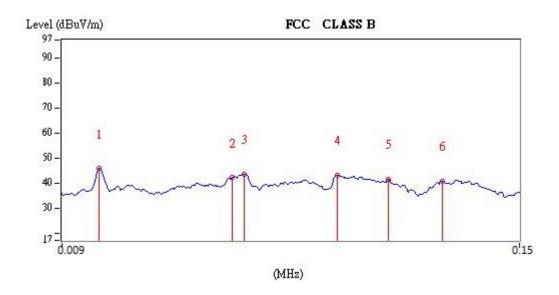
EUT: Foenix AN

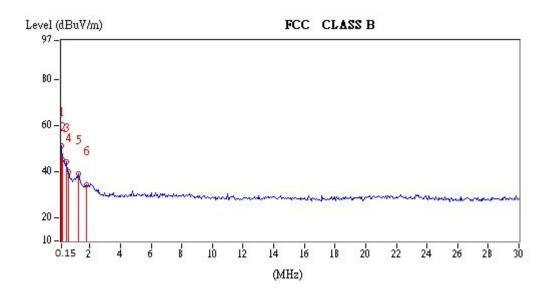
Frequency		Correction	Reading	Corrected	Limit	Margin
	Detector	Factor		Reading	@ 3 m	
(MHz)		(dB/m)	(dBµV)	(dBµV/m)	(dBμV/m)	(dB)
0.02	PK	19.27	26.48	45.75	121.58	-75.83
0.06	PK	18.99	23.09	42.08	112.04	-69.96
0.07	PK	18.97	24.59	43.56	110.70	-67.14
0.09	PK	18.80	24.29	43.09	108.52	-65.43
0.11	PK	18.76	22.73	41.49	106.78	-65.29
0.13	PK	18.77	21.98	40.75	105.33	-64.58
0.15	PK	18.77	32.55	51.32	104.08	-52.76
0.21	PK	18.79	26.33	45.12	101.16	-56.04
0.51	QP	18.69	25.76	44.45	73.45	-29.00
0.63	QP	18.69	21.33	40.02	71.62	-31.60
1.28	QP	18.68	20.50	39.18	65.46	-26.28
1.76	QP	18.67	15.70	34.37	69.54	-35.17





Page: 13 of 28







Page: 14 of 28

#### 4.4.2 Measurement results: frequencies equal to or less than 1 GHz

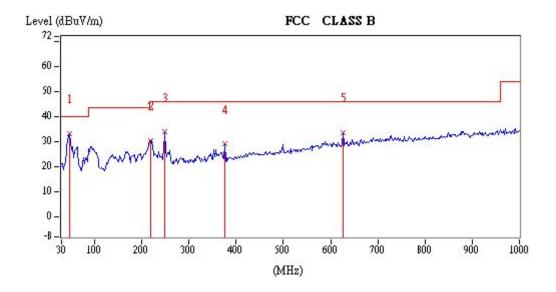
The test was performed continuously transmitting mode. The worst case occurred at TX Channel middle.

EUT: Foenix\_AN

Worst case: TX Channel middle

Ant. Pol.	Frequency	Spectrum Analyzer	Correction Factor	Reading	Corrected Reading	Limit @ 3 m	Margin
(H/V)	(MHz)	Detector	(dB/m)	(dBµV)	(dBµV/m)	(dBµV/m)	(dB)
Vertical	47.46	QP	20.37	12.86	33.23	40.00	-6.77
Vertical	218.18	QP	18.84	11.73	30.57	46.00	-15.43
Vertical	249.22	QP	20.36	13.53	33.89	46.00	-12.11
Vertical	375.32	QP	23.32	5.80	29.12	46.00	-16.88
Vertical	625.58	QP	28.66	5.07	33.73	46.00	-12.27

Remark: Corr. Factor = Antenna Factor + Cable Loss





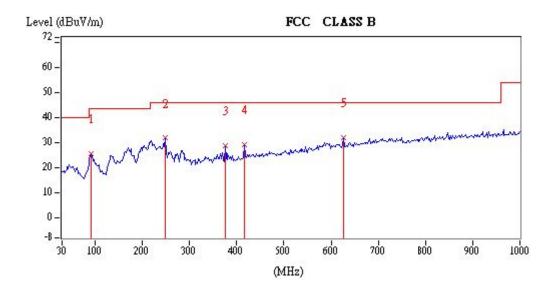
Page: 15 of 28

EUT: Foenix\_AN

Worst case: TX Channel middle

Ant.	Frequency	Spectrum	Correction	Reading	Corrected	Limit	Margin
Pol.		Analyzer	Factor		Reading	@ 3 m	
(H/V)	(MHz)	Detector	(dB/m)	(dBμV)	(dBµV/m)	(dBµV/m)	(dB)
Horizontal	92.08	QP	14.49	11.19	25.68	43.50	-17.82
Horizontal	249.22	QP	20.36	11.62	31.98	46.00	-14.02
Horizontal	375.32	QP	23.32	5.62	28.94	46.00	-17.06
Horizontal	416.06	QP	24.44	4.90	29.34	46.00	-16.66
Horizontal	625.58	QP	28.66	3.35	32.01	46.00	-13.99

Remark: Corr. Factor = Antenna Factor + Cable Loss





Page: 16 of 28

## 4.4.3 Measurement results: frequency above 1GHz

EUT: Foenix\_AN

	Frequency	Spectrum	Ant.	Correction	Reading	Corrected	Limit	Margin
Mode		Analyzer	Pol.	Factor		Reading	@ 3 m	
	(MHz)	Detector	(H/V)	(dB/m)	(dBµV)	(dBµV/m)	(dBµV/m)	(dB)
	1864	PK	V	33.25	18.68	51.93	74.00	-22.07
	1992	PK	V	34.36	18.20	52.56	74.00	-21.44
	2128	PK	V	34.41	29.62	64.03	74.00	-9.97
	2128	AV	V	34.41	7.74	42.15	54.00	-11.85
	4260	PK	V	3.80	43.29	47.09	74.00	-26.91
A NIT .	4804	PK	V	5.78	57.57	63.35	74.00	-10.65
ANT+ Ch Low	4804	AV	V	5.78	23.69	29.47	54.00	-24.53
CITLOW	5325	PK	V	7.12	35.77	42.89	74.00	-31.11
	6390	PK	V	10.60	32.40	43.00	54.00	-11.00
	2128	PK	Н	34.41	21.58	55.99	74.00	-18.01
	2128	AV	Н	34.41	1.37	35.78	54.00	-18.22
	4260	PK	Н	3.80	38.06	41.86	74.00	-32.14
	4804	PK	Н	5.78	47.50	53.28	74.00	-20.72
	1860	PK	V	33.22	20.26	53.48	74.00	-20.52
	2128	PK	V	34.41	30.98	65.39	74.00	-8.61
	2128	AV	V	34.41	9.83	44.24	54.00	-9.76
	4260	PK	V	3.80	42.40	46.20	74.00	-27.80
	4880	PK	V	6.11	51.81	57.92	74.00	-16.08
ANT+	4880	AV	V	6.11	22.00	28.11	54.00	-25.89
Ch Mid	5340	PK	V	7.14	34.80	41.94	74.00	-32.06
	6375	PK	V	10.51	32.38	42.89	74.00	-31.11
	2128	PK	Н	34.41	22.85	57.26	74.00	-16.74
	2128	AV	Н	34.41	1.47	35.88	54.00	-18.12
	4260	PK	Н	3.80	38.48	42.28	74.00	-31.72
	4880	PK	Н	6.11	41.37	47.48	74.00	-26.52

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre\_Amplifier Gain



Page: 17 of 28

	Frequency	Spectrum	Ant.	Correction	Reading	Corrected	Limit	Margin
Mode		Analyzer	Pol.	Factor		Reading	@ 3 m	
	(MHz)	Detector	(H/V)	(dB/m)	(dBµV)	(dBµV/m)	(dBµV/m)	(dB)
	1868	PK	V	33.29	19.51	52.80	74.00	-21.20
	1940	PK	V	33.91	18.38	52.29	74.00	-21.71
	2128	PK	V	34.41	32.51	66.92	74.00	-7.08
	2128	AV	V	34.41	10.14	44.55	54.00	-9.45
	4260	PK	V	3.80	43.55	47.35	74.00	-26.65
A NIT .	4960	PK	V	6.46	53.36	59.82	74.00	-14.18
ANT+ Ch High	4960	AV	V	6.46	22.06	28.52	54.00	-25.48
Cirriigii	5325	PK	V	7.12	37.35	44.47	74.00	-29.53
	6375	PK	V	10.51	35.02	45.53	74.00	-28.47
	2128	PK	Н	34.41	23.23	57.64	74.00	-16.36
	2128	AV	Н	34.41	1.55	35.96	54.00	-18.04
	4260	PK	Н	3.80	37.47	41.27	74.00	-32.73
	4960	PK	Н	6.46	44.72	51.18	74.00	-22.82

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre\_Amplifier Gain



Page: 18 of 28

#### 4.4.4 Measurement results: Fundamental

EUT: Foenix\_AN

Mode	Frequency	Spectrum	Ant.	Correction	Reading	Corrected		Margin
Wiode	(MHz)	Analyzer Detector	Pol. (H/V)	Factor (dB/m)	(dBµV)	Reading (dBµV/m)	@ 3 m (dBμV/m)	(dB)
	(141112)		, , ,					
		PK	V	34.37	51.95	86.32	114.00	-27.68
ANT+ Ch Low	2402	AV	V	34.37	0.46	34.83	94.00	-59.17
ANT+_CITLOW	2402	PK	Н	34.37	48.63	83.00	114.00	-31.00
		AV	Н	34.37	-0.92	33.45	94.00	-60.55
	2440	PK	٧	34.36	56.66	91.02	114.00	-22.98
ANT. Ch Mid		AV	٧	34.36	0.17	34.53	94.00	-59.47
ANT+_Ch Mid		PK	Н	34.36	43.23	77.59	114.00	-36.41
		AV	Н	34.36	-0.67	33.69	94.00	-60.31
		PK	٧	34.35	52.29	86.64	114.00	-27.36
ANT+_Ch High	2480	AV	٧	34.35	0.05	34.40	94.00	-59.60
		PK	Н	34.35	50.97	85.32	114.00	-28.68
		AV	Н	34.35	-0.72	33.63	94.00	-60.37

Remark: Correction Factor = Antenna Factor + Cable Loss



Page: 19 of 28

#### 5. Radiated emission on the band edge FCC 15.249(d)

#### 5.1 Operating environment

Temperature:	25	$^{\circ}\!\mathbb{C}$
Relative Humidity:	50	%
Atmospheric Pressure:	1008	hPa

#### 5.2 Radiated emission on the band edge test data

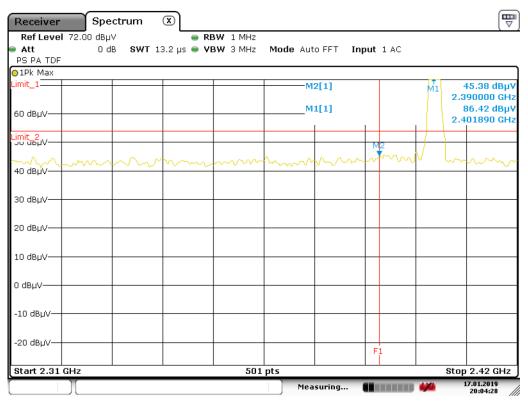
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

	Frequency	Spectrum	Ant.	Correction	Reading	Corrected	Limit	Margin	Restricted
Mode		Analyzer	Pol.	Factor		Reading	@ 3 m		band
	(MHz)	Detector	(H/V)	(dB/m)	(dBµV)	(dBµV/m)	(dBµV/m)	(dB)	(MHz)
	2390.00	PK	V	34.37	11.01	45.38	74	-28.62	2210~2200
ANT	2390.00	AV	V	34.37	-1.57	32.80	54	-21.20	2310~2390
ANT+	2483.50	PK	V	34.35	10.41	44.76	74	-29.24	2492 5~2500
	2483.50	AV	V	34.35	-2.39	31.96	54	-22.04	2483.5~2500

Remark: Correction Factor = Antenna Factor + Cable Loss

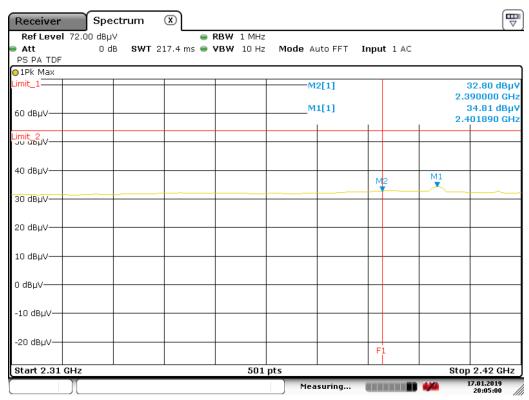
Page: 20 of 28

#### Bandedge @ mode ANT+ Ch0 Peak



Date: 17.JAN.2019 20:04:28

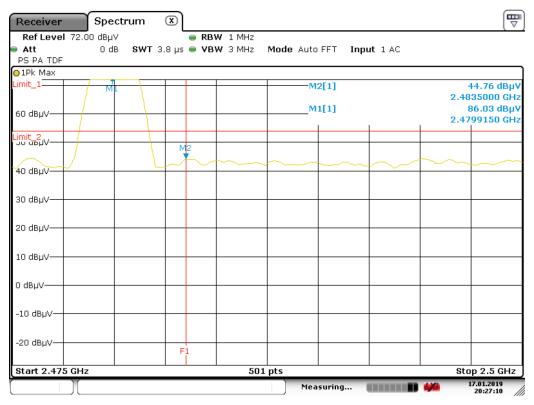
#### Bandedge @ mode ANT+ Ch0 Average



Date: 17.JAN.2019 20:05:00

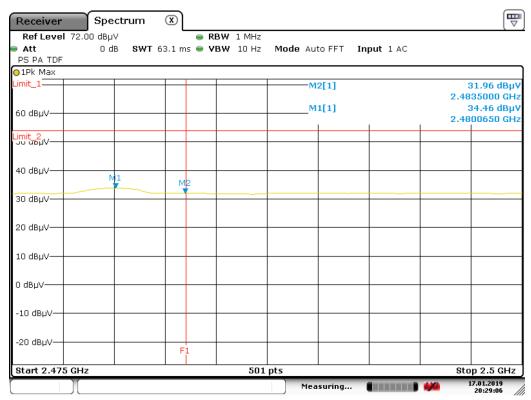
Page: 21 of 28

#### Bandedge @ mode ANT+ Ch39 Peak



Date: 17.JAN.2019 20:27:10

#### Bandedge @ mode ANT+ Ch39 Average



Date: 17.JAN.2019 20:29:06



Page: 22 of 28

#### **6. AC Power Line Conducted Emission**

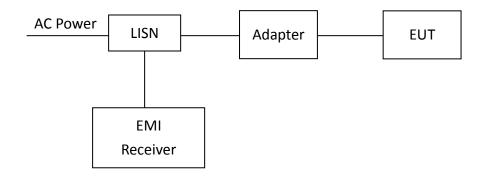
## 6.1 Measuring instrument setting

Receiver Function	Setting
Detector	QP
Start frequency	0.15MHz
Stop frequency	30MHz
IF bandwidth	9 kHz
Attenuation	10dB

#### **6.2 Test Procedure**

Step 1	Configure the EUT according to ANSI C63.10:2013. The EUT or host of EHT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
Step 2	Connect EUT or host of EUT to the power mains through a line impedance stabilization network.
Step 3	All the companion devices are connected to the other LISN. The LISN should provide 50Uh/50ohms coupling impedance.
Step 4	The frequency range from 150 kHz to 30MHz was searched.
Step 5	Set the test-receiver system to peak detector and specified bandwidth with maximum hold mode.
Step 6	The measurement has to be done between each power line and ground at the power terminal.

## **6.3 Test Diagram**





Page: 23 of 28

#### 6.4 Limit

Frequency	Conducted Limit (dBuV)				
(MHz)	Q.P.	Ave.			
0.15~0.50	66 – 56	56 – 46			
0.50~5.00	56	46			
5.00~30.0	60	50			

## **6.5 Operating Environment Condition**

Temperature ( $^{\circ}\mathbb{C}$ ):	25
Relative Humidity (%):	50
Atmospheric Pressure (hPa):	1010



Page: 24 of 28

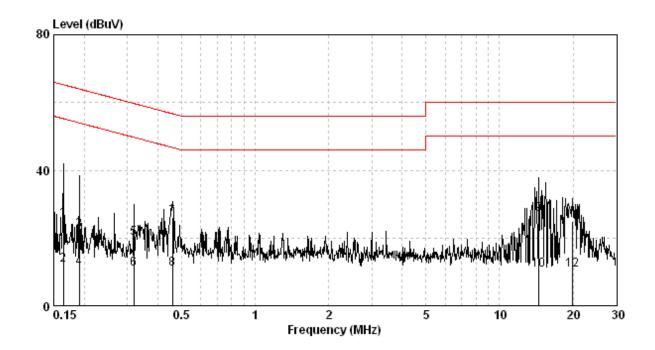
#### **6.6 Test Results**

Phase: Live Line
Model No.: Foenix\_AN
Test Condition: Tx mode

Frequency	Corr. Factor	Reading QP	Level QP	Limit QP	Reading AV	Level AV	Limit AV	(	rgin dB)
(MHz)	(dB)	(dBuV)	(dBu∀)	(dBu∀)	(dBu∜)	(dBu∀)	(dBuV)	QP	ΑV
0.164	9.73	15.84	25.57	65.25	2.26	11.99	55.25	-39.68	-43.26
0.190	9.73	12.51	22.24	64.02	1.42	11.15	54.02	-41.78	-42.87
0.318	9.73	10.11	19.85	59.75	1.09	10.82	49.75	-39.90	-38.93
0.459	9.74	16.20	25.94	56.71	1.06	10.80	46.71	-30.77	-35.91
14.517	9.90	16.91	26.82	60.00	0.51	10.42	50.00	-33.18	-39.58
19.845	9.90	14.91	24.81	60.00	0.51	10.41	50.00	-35.19	-39.59

#### Remark:

- 1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
- 2. Level (dBuV) = Corr. Factor (dB) + Reading (dBuV)
- 3. Margin (dB) = Level (dBuV) Limit (dBuV)





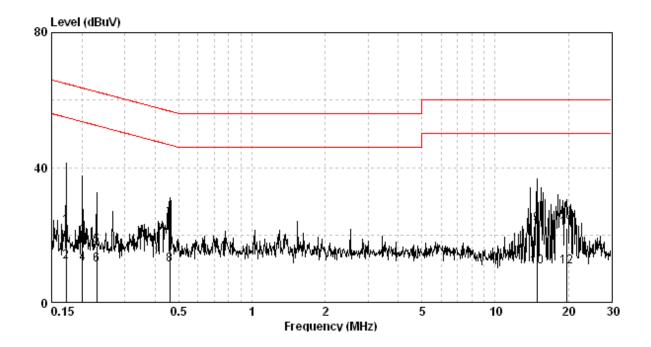
Page: 25 of 28

Phase: Neutral Line
Model No.: Foenix\_AN
Test Condition: Tx mode

Corr.	Reading	Level	Limit	Reading	Level	Limit		rgin
Frequency Factor	QP	QP	QP	AV	AV	AV		(dB)
(MHz) (dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV)		AV
0.172 9.74	12.68	22.42	64.86	2.25	11.99	54.86	-42.43	-42.87
0.201 9.74	9.66	19.40	63.58	1.55	11.29	53.58	-44.18	-42.29
0.230 9.74	6.82	16.56	62.44	1.48	11.22	52.44	-45.88	-41.22
0.459 9.75 14.828 9.95 19.635 9.97	14.79 13.11	24.54 23.06	56.71 60.00	1.32 0.61	11.07 10.56	46.71 50.00	-32.18 -36.94	-35.64 -39.44

#### Remark:

- 1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
- 2. Level (dBuV) = Corr. Factor (dB) + Reading (dBuV)
- 3. Margin (dB) = Level (dBuV) Limit (dBuV)





Page: 26 of 28

## Appendix A: Test equipment list

Test Equipment/ Test site	Brand	Model No.	Serial No.	Calibration Date	Next Calibration Date
ESCI EMI Test Receiver	Rohde & Schwarz	ESCI	100018	2018/11/14	2019/11/13
Spectrum Analyzer	Rohde & Schwarz	FSP30	100245	2018/02/23	2019/02/22
Horn Antenna (1-18G)	SHWARZBECK	BBHA 9120 D	9120D-456	2018/01/23	2019/01/22
Horn Antenna (14-42G)	SHWARZBECK	BBHA 9170	BBHA9170159	2017/09/04	2020/09/02
Broadband Antenna	SHWARZBECK	VULB 9168	9168-172	2018/04/23	2019/04/22
Pre-Amplifier	EMC Co.	EMC12635SE	980205	2018/12/10	2019/12/09
Pre-Amplifier	MITEQ	JS4-2600400027 -8A	828825	2018/08/28	2019/08/27
Power Meter	Anritsu	ML2495A	0844001	2018/10/29	2019/10/28
Power Sensor	Anritsu	MA2411B	0738452	2018/10/29	2019/10/28
Signal Analyzer	Agilent	N9030A	MY51380492	2018/08/24	2019/08/23
966-2(A) Cable 9kHz~26.5GHz	SUHNER	SMA / EX 100	N/A	2018/08/07	2019/08/06
966-2(B) Cable 9kHz~26.5GHz	SUHNER	SUCOFLEX 104P	CB0005	2018/08/07	2019/08/06
RF Cable 9kHz~26.5GHz	SUHNER	SUCOFLEX 102	CB0006	2018/05/03	2019/05/02
966-2_3m Semi-Anechoic Chamber	966_2	CEM-966_2	N/A	2018/03/05	2019/03/04
High Pass Filter	Wainwright	WHKX3.0/ 18G-12SS	N/A	2018/06/01	2019/05/31
Active Loop Antenna	SCHWARZBECK MESS-ELEKTRONIC	FMZB1519	1519-067	2018/04/17	2019/04/16

Note: No Calibration Required (NCR)



Page: 27 of 28

Test Equipment/ Test site	Brand	Model No.	Serial No.	Calibration Date	Next Calibration Date
EMI Receiver	R&S	ESCI	100059	2018/11/07	2019/11/06
Two-Line V-Network	R&S	ENV216	101159	2018/06/01	2019/05/31
Two-Line -V-Network	R&S	ESH3-Z5	825562/003	2018/09/03	2019/09/02
CON-1 Shielded Room	N/A	N/A	N/A	NCR	NCR
CON-1 Cable	SUHNER	SUCOFLEX-104	26438414	2018/05/03	2019/05/02
Test software	Audix	e3	4.20040112L	NCR	NCR

Note: No Calibration Required (NCR).



Page: 28 of 28

## **Appendix B: Measurement Uncertainty**

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of k=2.

Item	Uncertainty
Vertically polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m	5.14 dB
Horizontally polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m	5.22 dB
Vertically polarized Radiated disturbances from 1GHz~18GHz in a semi-anechoic chamber at a distance of 3m	3.64 dB
Horizontally polarized Radiated disturbances from 1GHz~18GHz in a semi-anechoic chamber at a distance of 3m	3.64 dB
Vertically polarized Radiated disturbances from 18GHz~40GHz in a semi-anechoic chamber at a distance of 3m	2.68 dB
Horizontally polarized Radiated disturbances from 18GHz~40GHz in a semi-anechoic chamber at a distance of 3m	2.68 dB
Radiated disturbances from 9kHz~30MHz in a semi-anechoic chamber at a distance of 3m	3.54 dB
Emission on the Band Edge Test	3.64 dB
20dB Bandwidth	1.22 dB
AC Power Line Conducted Emission	2.48 dB