

InnoComm Mobile Technology Corp.

TEST REPORT

REPORT NUMBER
181200216TWN-001

ISSUE DATE

Jan. 28, 2019

PAGES
32

DOCUMENT CONTROL NUMBER

© 2019 INTERTEK



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



Prepared and Checked by:



John Cheng
Engineer

Approved by:



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.

Revision History

Report No.	Issue Date	Revision Summary
181200016TWN-001	Jan. 28, 2019	Original report

Table of Contents

Summary of Tests	4
1. General Information	5
1.1 Identification of the EUT	5
1.2 Description of the EUT	5
1.3 Antenna description	5
1.4 Peripherals equipment	5
2. Test specifications.....	6
2.1 Test standard	6
2.2 Operation mode	6
3. 20dB Bandwidth test	7
3.1 Operating environment	7
3.2 Test setup & procedure	7
3.3 Measured data of modulated bandwidth test results.....	7
4. Radiated emission test FCC 15.249 (C)	11
4.1 Operating environment	11
4.2 Test setup & procedure	11
4.3 Emission limit	13
4.3.1 Fundamental and harmonics emission limits.....	13
4.3.2 General radiated emission limits	14
4.4 Radiated spurious emission test data	14
4.4.1 Measurement results: frequency range from 9 kHz to 30 MHz.....	14
4.4.2 Measurement results: frequencies equal to or less than 1 GHz	16
4.4.3 Measurement results: frequency above 1GHz.....	18
4.4.4 Measurement results: Fundamental	19
5. Radiated emission on the band edge FCC 15.249(d)	21
5.1 Operating environment	21
5.2 Radiated emission on the band edge test data	21
6. AC Power Line Conducted Emission	26
6.1 Measuring instrument setting.....	26
6.2 Test Procedure	26
6.3 Test Diagram	26
6.4 Limit.....	27
6.5 Operating Environment Condition	27
6.6 Test Results	28
Appendix A: Test equipment list.....	30
Appendix B: Measurement Uncertainty	32

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

1. General Information

1.1 Identification of the EUT

Product:	Wireless console module
Model No.:	Foenix_AN
Operating Frequency:	79 channels
Channel Number:	2402+1k MHz, k=0~78
Access scheme:	GFSK, $\pi/4$ DQSP, 8DPSK
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 Description of 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 : 3.95 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

2. Test specifications

2.1 Test standard

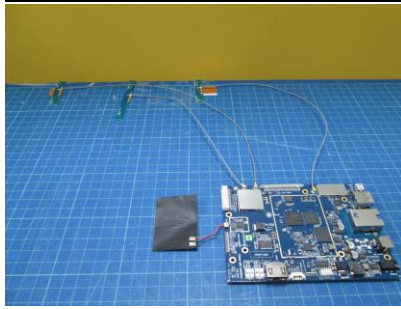
The EUT was performed according to the procedures in FCC Part 15 Subpart C Paragraph 15.249 for non-spread spectrum devices.

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.

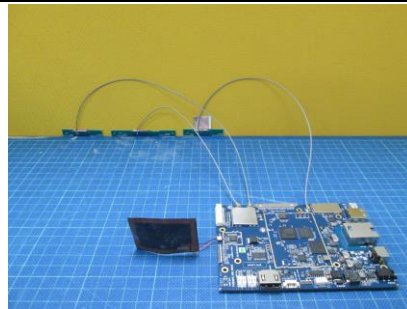
2.2 Operation mode

TX mode: EUT use 「cmd.exe」 entering test mode , and write down different cmd to change different channel.

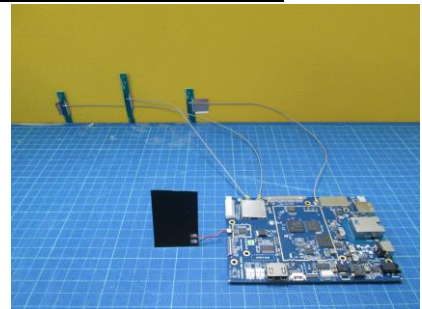
The signal is maximized through rotation and placement in the three orthogonal axes.



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.

3. 20dB Bandwidth test

3.1 Operating environment

Temperature:	25	°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)
GFSK	2402	0.889
	2441	0.892
	2480	0.840
$\pi/4$ -DQPSK	2402	1.097
	2441	1.104
	2480	1.089
8DQPSK	2402	1.120
	2441	1.110
	2480	1.115

Please see the plot below.

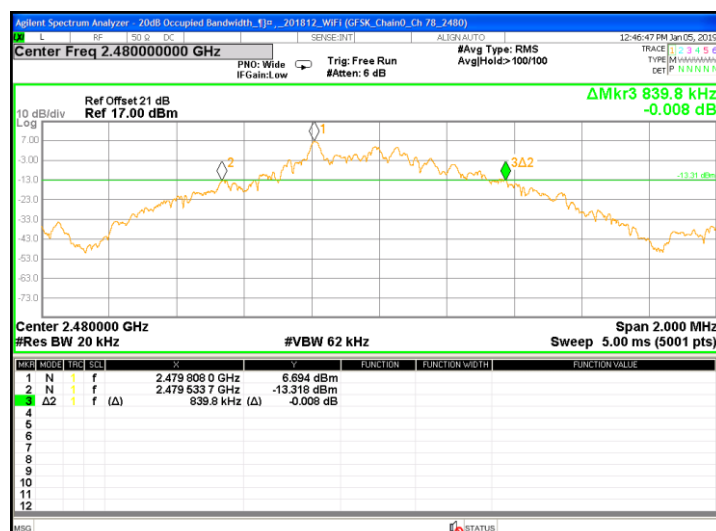
20dB Bandwidth @ GFSK_Channel 0



20dB Bandwidth @ GFSK_Channel 39



20dB Bandwidth @ GFSK_Channel 78



20dB Bandwidth @ $\pi/4$ -DQPSK_Channel 0



20dB Bandwidth @ $\pi/4$ -DQPSK_Channel 39



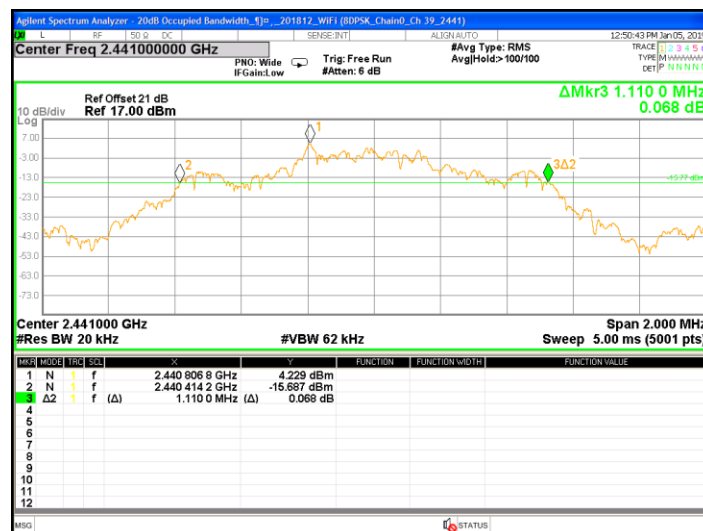
20dB Bandwidth @ $\pi/4$ -DQPSK_Channel 78



20dB Bandwidth @ 8DQPSK_Channel 0



20dB Bandwidth @ 8DQPSK_Channel 39



20dB Bandwidth @ 8DQPSK_Channel 78



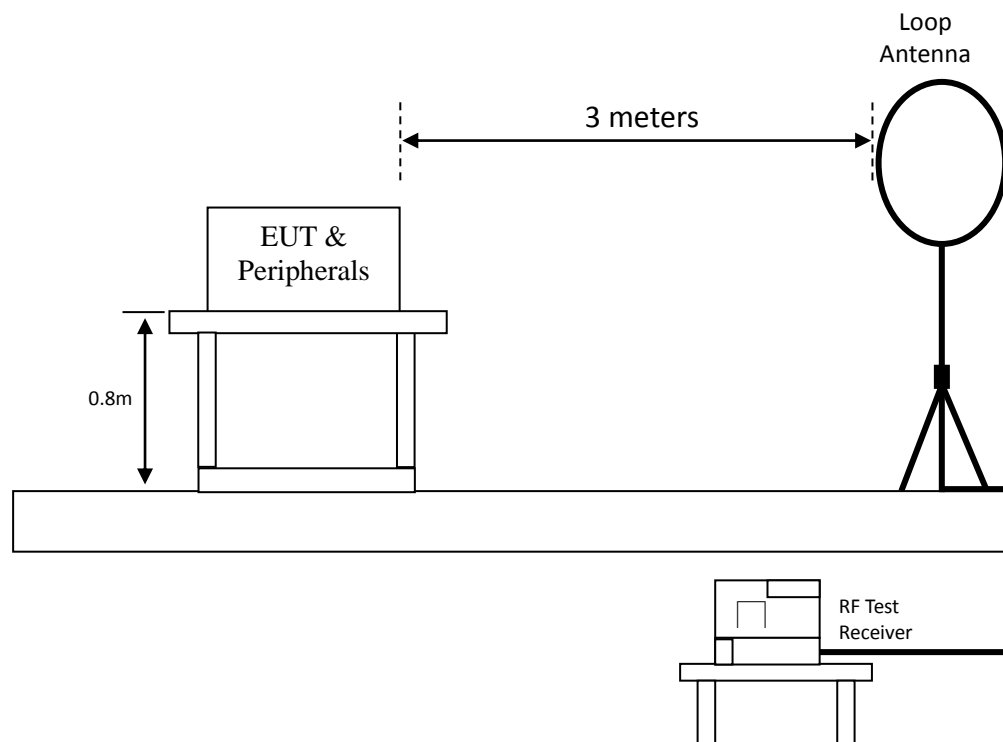
4. Radiated emission test FCC 15.249 (C)

4.1 Operating environment

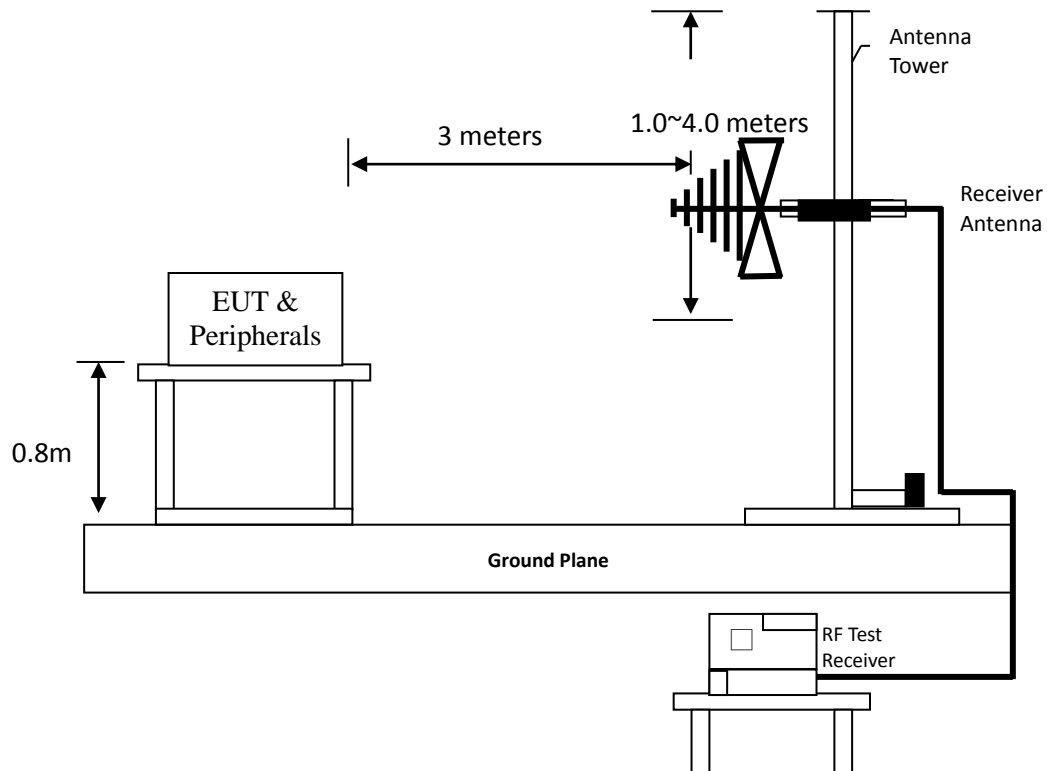
Temperature:	25	°C
Relative Humidity:	50	%
Atmospheric Pressure:	1008	hPa

4.2 Test setup & procedure

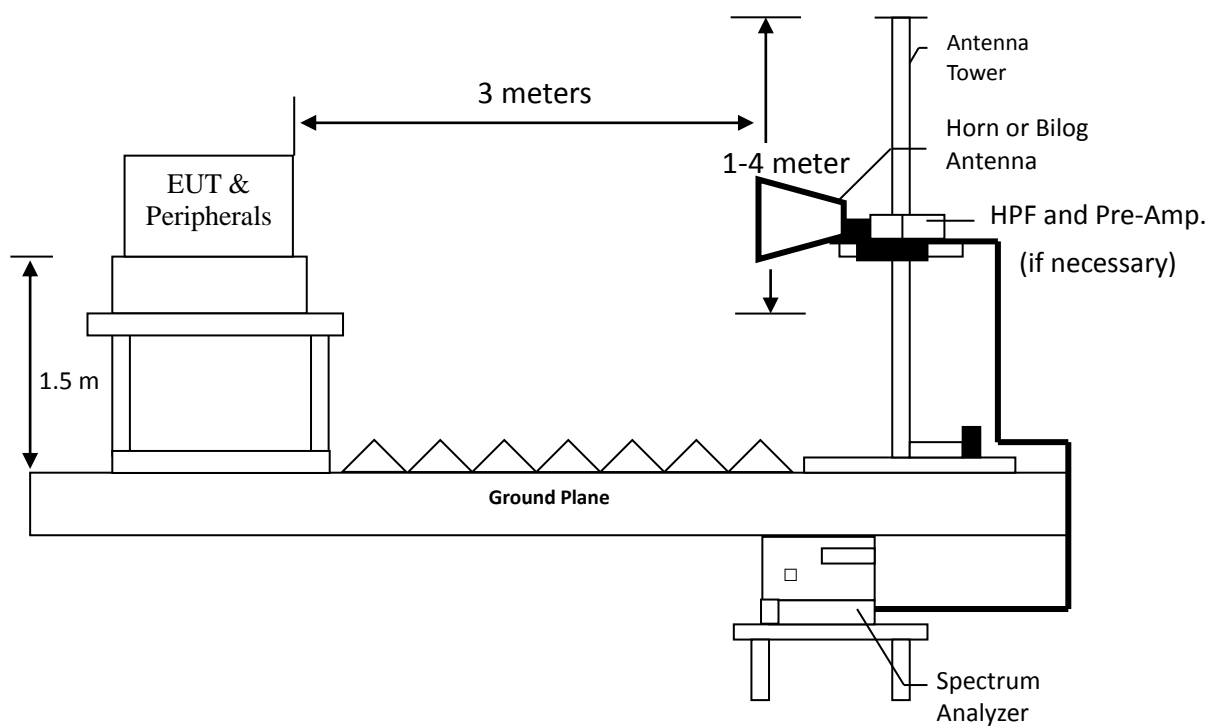
Radiated emission from 9kHz to 30MHz uses Loop Antenna:



Radiated emission below 1GHz using Bilog Antenna



Radiated emission above 1GHz using Horn Antenna



Radiated emissions were investigated 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 (MHz)	Field Strength of Fundamental		Field Strength of Harmonics	
	(mV/m@3m)	(dBuV/m@3m)	(uV/m@3m)	(dBuV/m@3m)
2400-2483.5	50	94	500	54

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:

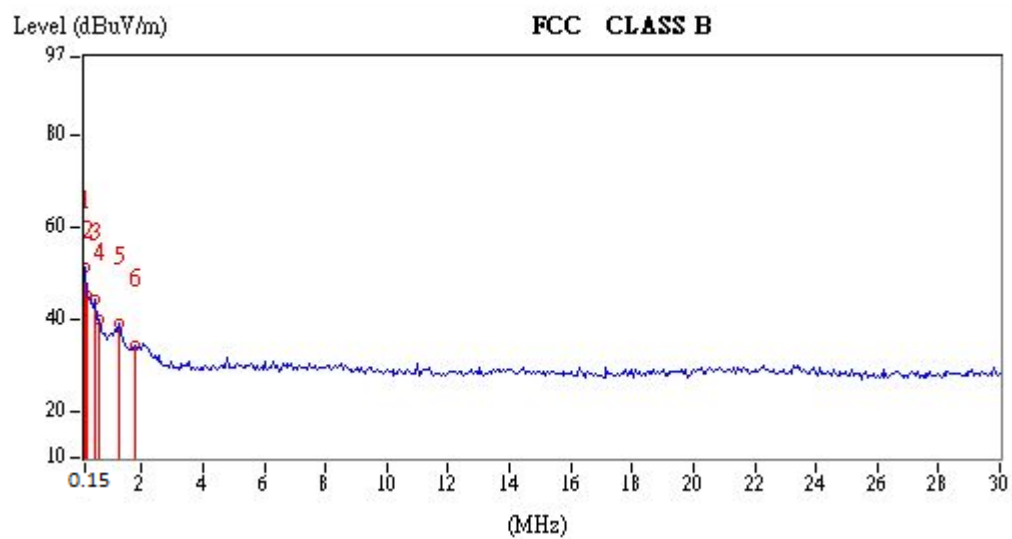
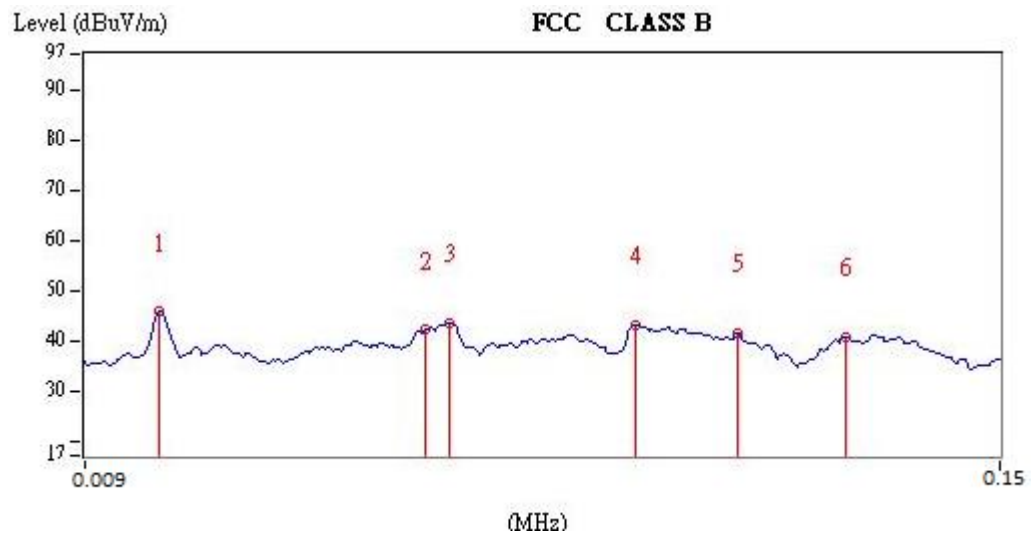
1. In the above table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

4.4 Radiated spurious emission test data

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

EUT: Foenix_AN

Frequency (MHz)	Detector	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (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



TEST REPORT

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

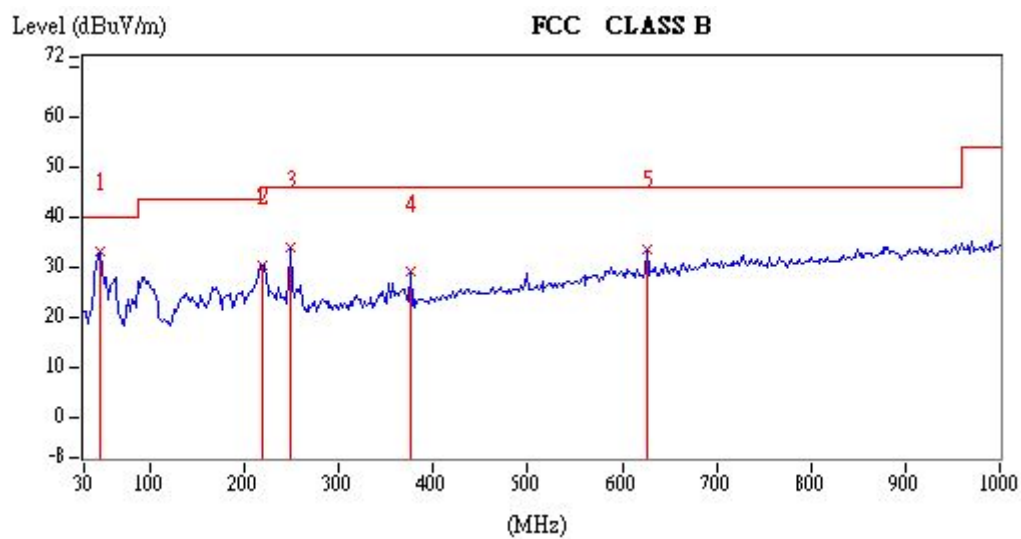
The test was performed on EUT under GFSK, $\pi/4$ DQSP, & 8-DPSK continuously transmitting mode. Channel 0, 39, 78 were verified. The worst case occurred at GFSK TX Channel 78

EUT: Foenix_AN

Worst case: GFSK TX Channel 78

Ant. Pol. (H/V)	Frequency (MHz)	Spectrum Analyzer Detector	Correction Factor (dB/m)	Reading (dB μ V)	Corrected Reading (dB μ V/m)	Limit @ 3 m (dB μ V/m)	Margin (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

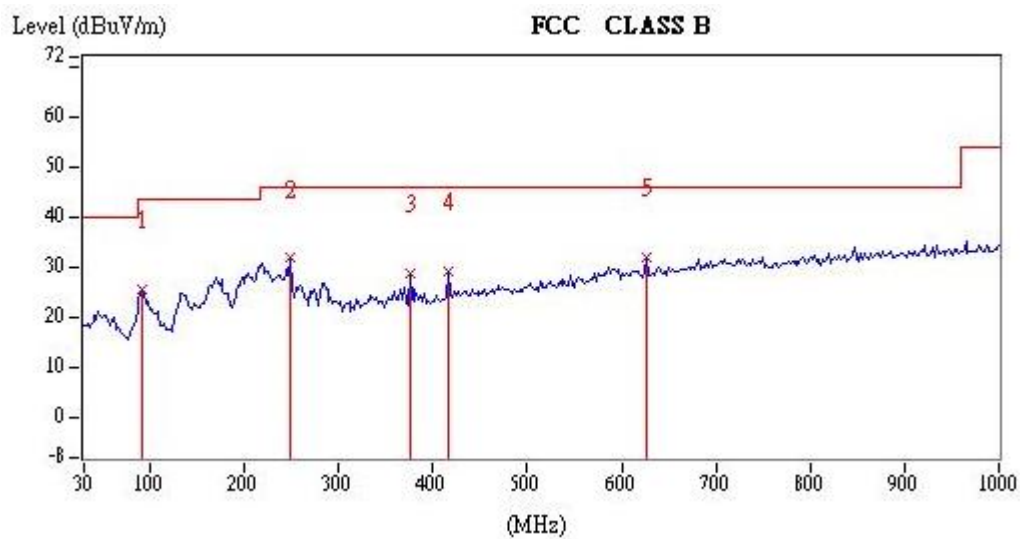
Remark: Corr. Factor = Antenna Factor + Cable Loss



EUT: Foenix_AN
Worst case: GFSK TX Channel 78

Ant. Pol. (H/V)	Frequency (MHz)	Spectrum Analyzer Detector	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (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



4.4.3 Measurement results: frequency above 1GHz

EUT: Foenix_AN

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
GFSK_Ch0	4804	PK	V	5.78	32.74	38.52	74.00	-35.48
	4804	PK	H	5.78	30.11	35.89	74.00	-38.11
GFSK_Ch39	4882	PK	V	6.12	31.03	37.15	74.00	-36.85
	4882	PK	H	6.12	30.92	37.04	74.00	-36.96
GFSK_Ch78	4960	PK	V	6.46	31.51	37.97	74.00	-36.03
	4960	PK	H	6.46	30.70	37.16	74.00	-36.84
$\pi/4$ -DQPSK_Ch0	4804	PK	V	5.78	32.29	38.07	74.00	-35.93
	4804	PK	H	5.78	31.56	37.34	74.00	-36.66
$\pi/4$ -DQPSK_Ch39	4882	PK	V	6.12	31.10	37.22	74.00	-36.78
	4882	PK	H	6.12	31.18	37.30	74.00	-36.70
$\pi/4$ -DQPSK_Ch78	4960	PK	V	6.46	30.92	37.38	74.00	-36.62
	4960	PK	H	6.46	31.32	37.78	74.00	-36.22
8DPSK_Ch0	4804	PK	V	5.78	33.66	39.44	74.00	-34.56
	4804	PK	H	5.78	31.09	36.87	74.00	-37.13
8DPSK_Ch39	4882	PK	V	6.12	30.74	36.86	74.00	-37.14
	4882	PK	H	6.12	31.49	37.61	74.00	-36.39
8DPSK_Ch78	4960	PK	V	6.46	32.30	38.76	74.00	-35.24
	4960	PK	H	6.46	31.26	37.72	74.00	-36.28

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

4.4.4 Measurement results: Fundamental

EUT: Foenix_AN

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
GFSK_Ch0	2402	PK	V	34.37	48.46	82.83	114.00	-31.17
		AV	V	34.37	0.36	34.73	94.00	-59.27
		PK	H	34.37	45.47	79.84	114.00	-34.16
		AV	H	34.37	0.11	34.48	94.00	-59.52
GFSK_Ch39	2441	PK	V	34.36	49.74	84.10	114.00	-29.90
		AV	V	34.36	0.43	34.79	94.00	-59.21
		PK	H	34.36	52.01	86.37	114.00	-27.63
		AV	H	34.36	0.63	34.99	94.00	-59.01
GFSK_Ch78	2480	PK	V	34.35	49.88	84.23	114.00	-29.77
		AV	V	34.35	0.45	34.80	94.00	-59.20
		PK	H	34.35	53.11	87.46	114.00	-26.54
		AV	H	34.35	0.66	35.01	94.00	-58.99
$\pi/4$ -DQPSK_Ch0	2402	PK	V	34.37	48.58	82.95	114.00	-31.05
		AV	V	34.37	0.24	34.61	94.00	-59.39
		PK	H	34.37	48.56	82.93	114.00	-31.07
		AV	H	34.37	0.08	34.45	94.00	-59.55
$\pi/4$ -DQPSK_Ch39	2441	PK	V	34.36	50.09	84.45	114.00	-29.55
		AV	V	34.36	0.56	34.92	94.00	-59.08
		PK	H	34.36	48.84	83.20	114.00	-30.80
		AV	H	34.36	0.55	34.91	94.00	-59.09
$\pi/4$ -DQPSK_Ch78	2480	PK	V	34.35	49.97	84.32	114.00	-29.68
		AV	V	34.35	0.60	34.95	94.00	-59.05
		PK	H	34.35	52.74	87.09	114.00	-26.91
		AV	H	34.35	0.82	35.17	94.00	-58.83
8DPSK_Ch0	2402	PK	V	34.37	47.42	81.79	114.00	-32.21
		AV	V	34.37	0.22	34.59	94.00	-59.41
		PK	H	34.37	47.48	81.85	114.00	-32.15
		AV	H	34.37	0.13	34.50	94.00	-59.50
8DPSK_Ch39	2441	PK	V	34.36	50.25	84.61	114.00	-29.39
		AV	V	34.36	0.34	34.70	94.00	-59.30
		PK	H	34.36	51.44	85.80	114.00	-28.20
		AV	H	34.36	0.47	34.83	94.00	-59.17

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
8DPSK_Ch78	2480	PK	V	34.35	50.45	84.80	114.00	-29.20
		AV	V	34.35	0.50	34.85	94.00	-59.15
		PK	H	34.35	52.68	87.03	114.00	-26.97
		AV	H	34.35	0.74	35.09	94.00	-58.91

Remark: Correction Factor = Antenna Factor + Cable Loss

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

5.1 Operating environment

Temperature:	25	°C
Relative Humidity:	50	%
Atmospheric Pressure:	1008	hPa

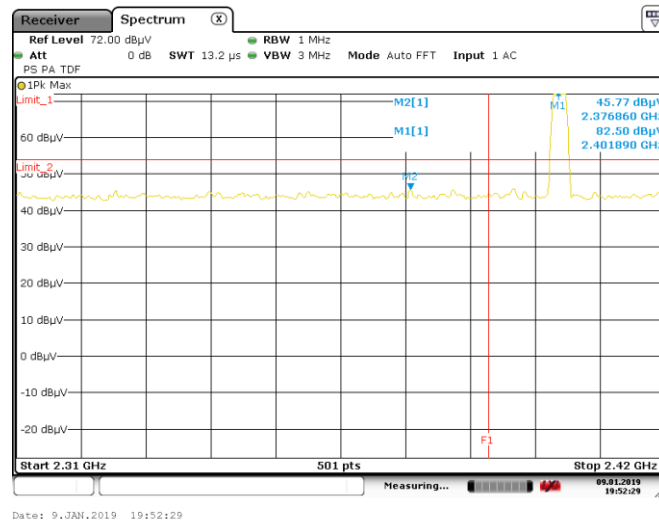
5.2 Radiated emission on the band edge test data

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 (2470MHz) or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

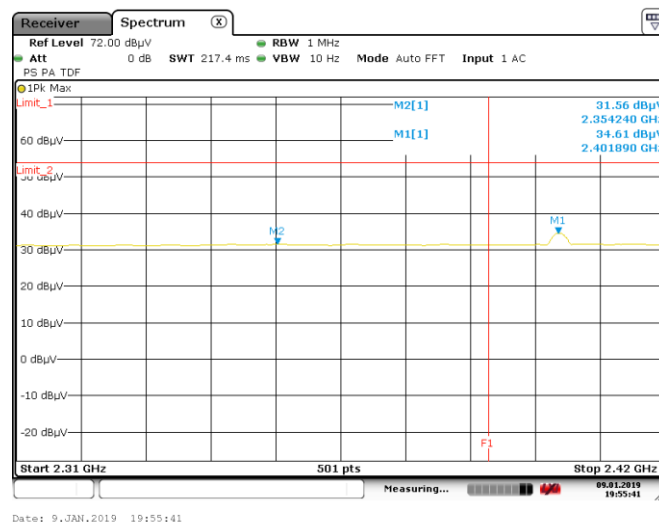
Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)	Restricted band (MHz)
GFSK	2376.86	PK	H	34.37	11.40	45.77	74	-28.23	2310~2390
	2354.24	AV	H	34.37	-2.81	31.56	54	-22.44	
	2386.35	PK	H	34.35	11.11	45.46	74	-28.54	2483.5~2500
	2487.45	AV	H	34.35	-2.61	31.74	54	-22.26	
π/4-DQPSK	2346.97	PK	H	34.37	11.62	45.99	74	-28.01	2310~2390
	2353.58	AV	H	34.37	-2.82	31.55	54	-22.45	
	2497.77	PK	H	34.35	11.42	45.77	74	-28.23	2483.5~2500
	2488.33	AV	H	34.35	-2.59	31.76	54	-22.24	
8DQPSK	2352.67	PK	H	34.37	10.82	45.19	74	-28.81	2310~2390
	2383.19	AV	H	34.37	-2.79	31.58	54	-22.42	
	2498.21	PK	H	34.35	11.73	46.08	74	-27.92	2483.5~2500
	2488.00	AV	H	34.35	-2.59	31.76	54	-22.24	

Remark: Correction Factor = Antenna Factor + Cable Loss

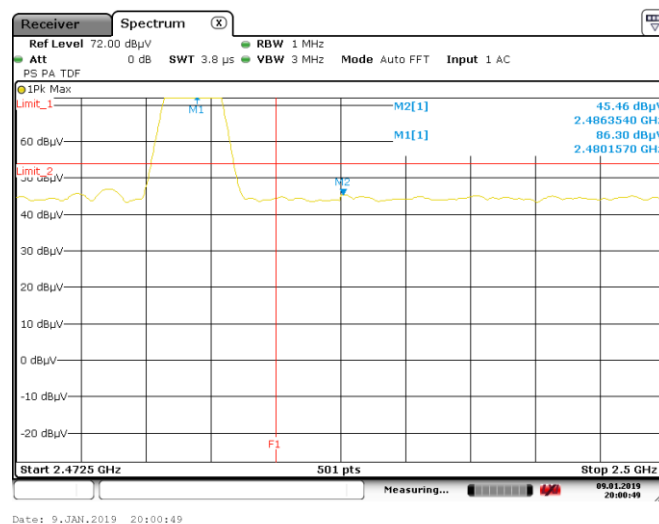
Bandedge @ mode GFSK Ch0 Peak



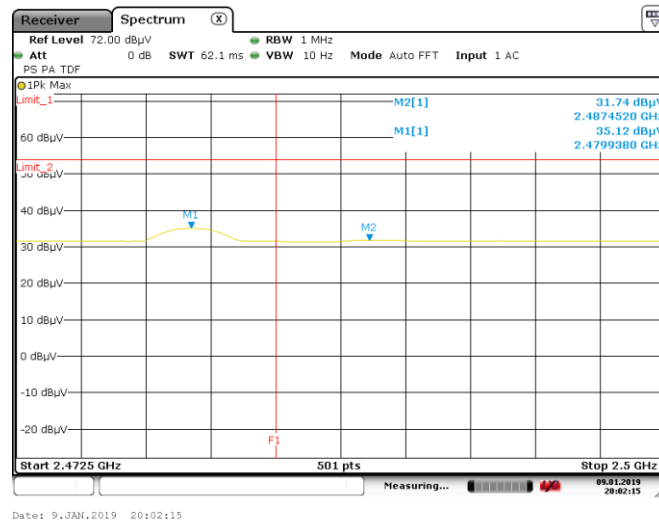
Bandedge @ mode GFSK Ch0 Average



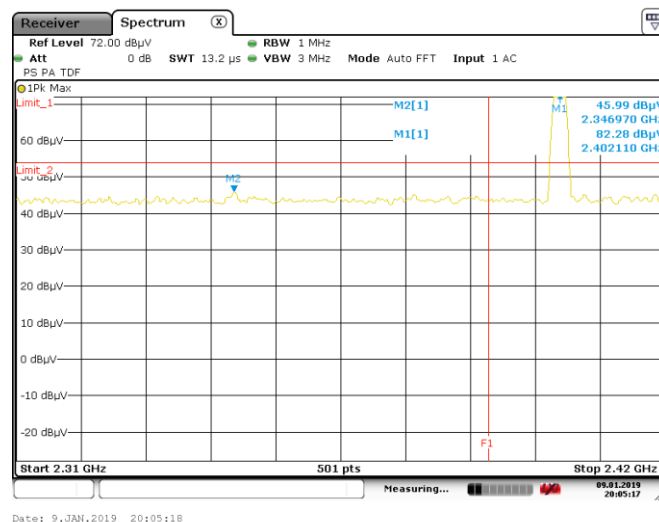
Bandedge @ mode GFSK Ch78 Peak



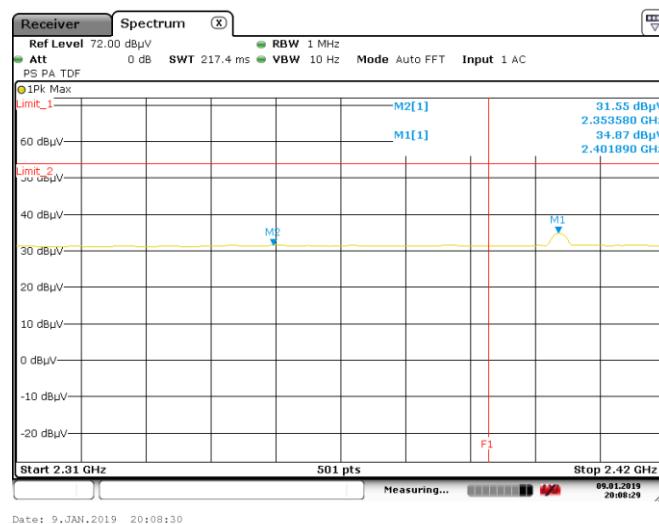
Bandedge @ mode GFSK Ch78 Average



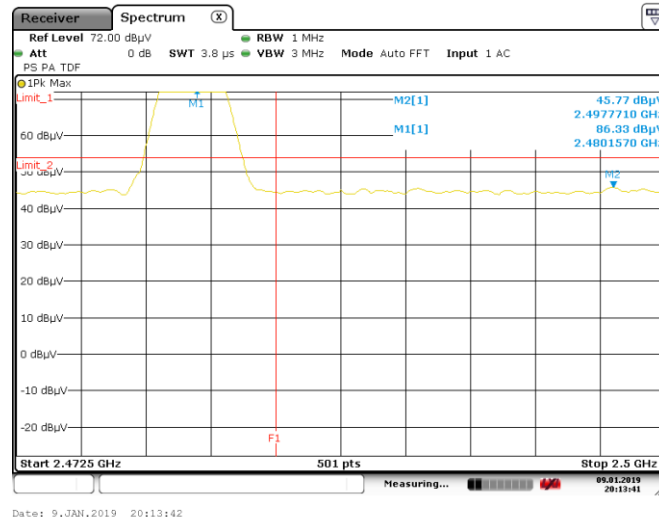
Bandedge @ mode $\pi/4$ -DQPSK Ch0 Peak



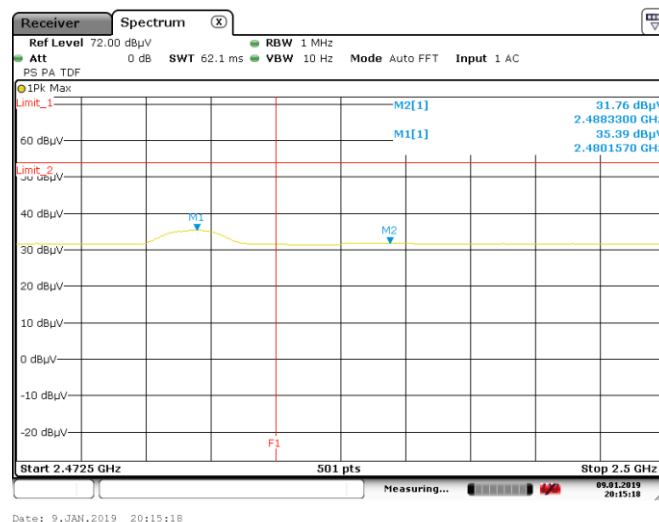
Bandedge @ mode $\pi/4$ -DQPSK Ch0 Average



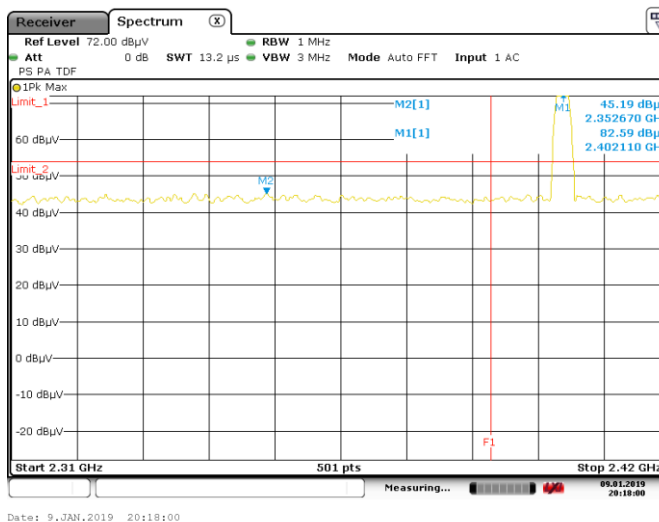
Bandedge @ mode $\pi/4$ -DQPSK Ch78 Peak



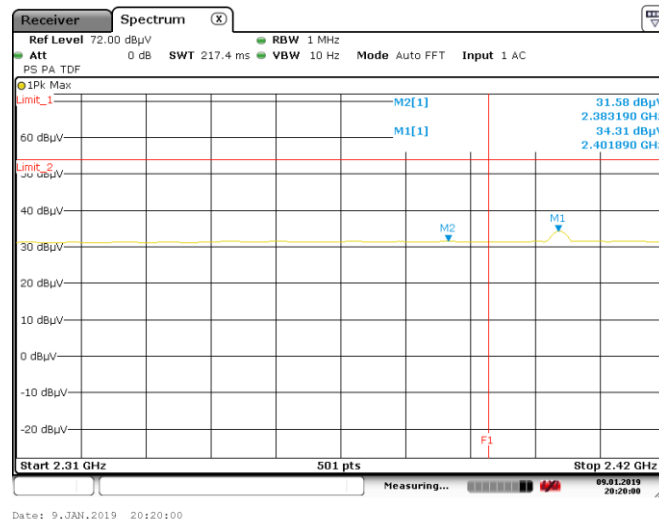
Bandedge @ mode $\pi/4$ -DQPSK Ch78 Average



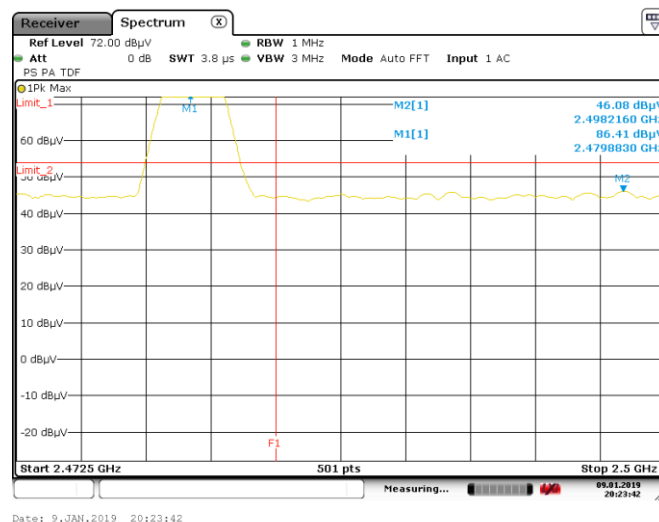
Bandedge @ mode 8DPSK Ch0 Peak



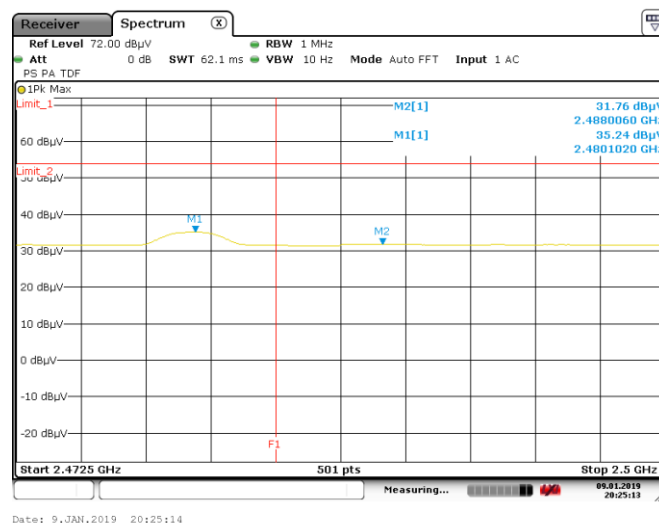
Bandedge @ mode 8DPSK Ch0 Average



Bandedge @ mode 8DPSK Ch78 Peak



Bandedge @ mode 8DPSK Ch78 Average



6. AC Power Line Conducted Emission

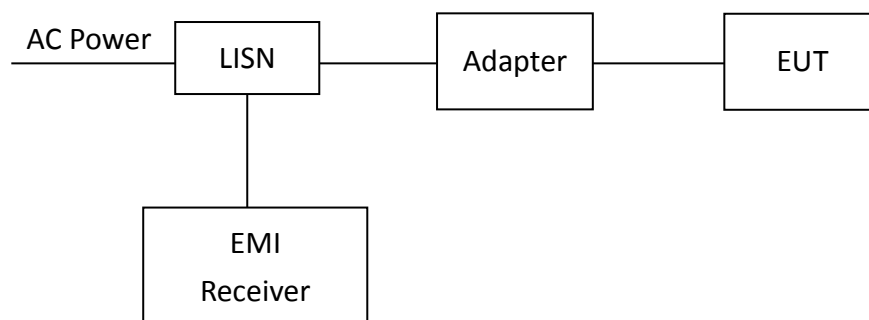
6.1 Measuring instrument setting

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



6.4 Limit

Frequency (MHz)	Conducted Limit (dBuV)	
	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 (°C) :	26
Relative Humidity (%) :	68
Atmospheric Pressure (hPa) :	1010

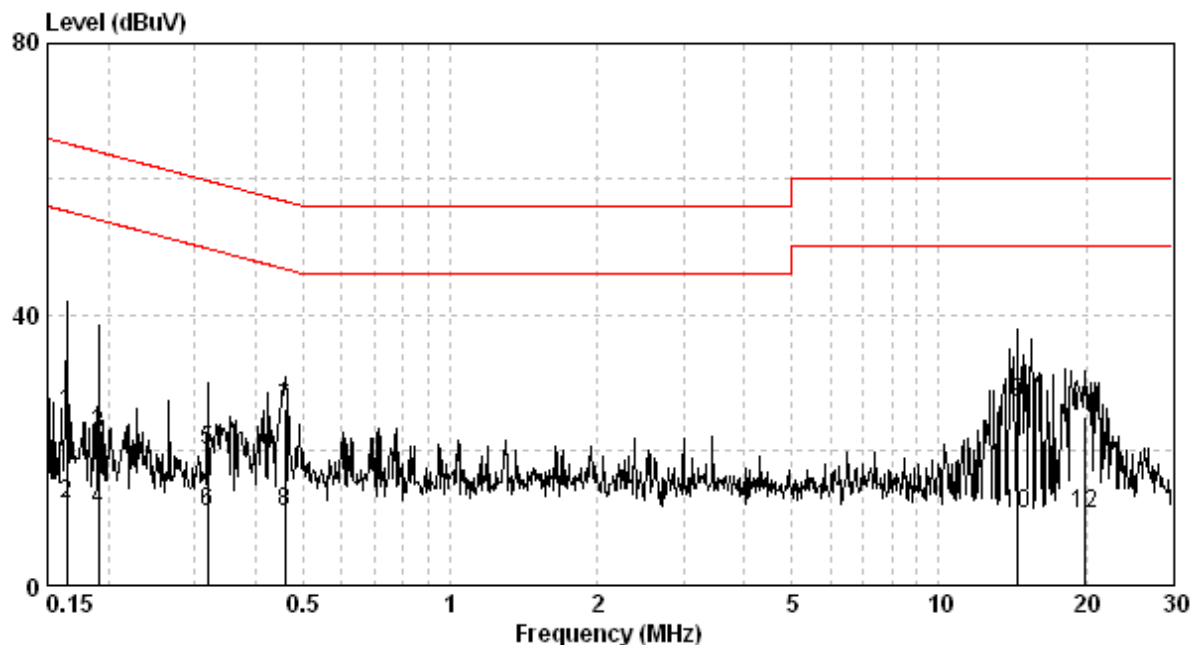
6.6 Test Results

Phase: Live Line
Model No.: Foenix_AN
Test Condition: Tx mode

Frequency (MHz)	Corr. Factor (dB)	Reading QP (dBuV)	Level QP (dBuV)	Limit QP (dBuV)	Reading AV (dBuV)	Level AV (dBuV)	Limit AV (dBuV)	Margin (dB)	
								QP	AV
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)



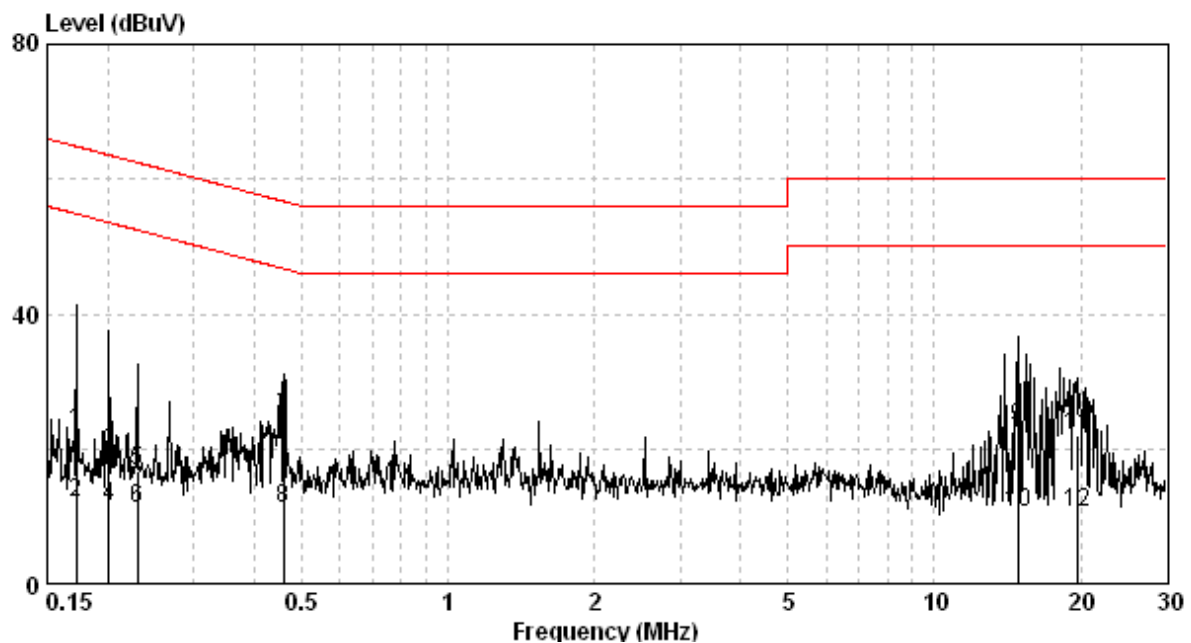
TEST REPORT

Phase: Neutral Line
Model No.: Foenix_AN
Test Condition: Tx mode

Frequency (MHz)	Corr. Factor (dB)	Reading QP (dBuV)	Level QP (dBuV)	Limit QP (dBuV)	Reading AV (dBuV)	Level AV (dBuV)	Limit AV (dBuV)	Margin (dB)	
								QP	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	14.79	24.54	56.71	1.32	11.07	46.71	-32.18	-35.64
14.828	9.95	13.11	23.06	60.00	0.61	10.56	50.00	-36.94	-39.44
19.635	9.97	11.88	21.85	60.00	0.65	10.62	50.00	-38.15	-39.38

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)



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	JS4-26004000--27-8A	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)

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).

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