FCC Test Report

Report No.: AGC09691210401FE10

FCC ID	:	2ARN3-BLINK1RX
PRODUCT DESIGNATION	:	TDMA Wireless Microphone System
BRAND NAME	:	SARAMONIC
MODEL NAME	:	Blink1 RX, Blink1 Kit2, Blink1 Kit1, Blink1 System
APPLICANT	:	Shenzhen Jiayz photo industrial., Ltd
DATE OF ISSUE	:	Oct. 08, 2021
STANDARD(S)	:	FCC Part 15 Subpart D §15.323
REPORT VERSION	:	V 1.0

***A**ttestation of **G**lobal **C**ompliance (Shenzhen) Co., Ltd*

REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Oct. 08, 2021	Valid	Initial Release

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1. GENERAL INFORMATION

Applicant	Shenzhen Jiayz photo industrial., Ltd
Address	A16 Building, Intelligent Terminal Industrial Park of Silicon Valley Power, Guanlan, Longhua District, Shenzhen, China
Manufacturer	Shenzhen Jiayz photo industrial., Ltd
Address	A16 Building, Intelligent Terminal Industrial Park of Silicon Valley Power, Guanlan, Longhua District, Shenzhen, China
Factory	Shenzhen Jiayz photo industrial., Ltd
Address	A16 Building, Intelligent Terminal Industrial Park of Silicon Valley Power, Guanlan, Longhua District, Shenzhen, China
Product Designation	TDMA Wireless Microphone System
Brand Name	Saramonic
Test Model	Blink1 RX
Series Model	Blink1 Kit2, Blink1 Kit1, Blink1 System
Difference description	All the series models are the same as the test model except for the model names.
Deviation from Standard	No any deviation from the test method
Date of Receipt	Apr.11, 2021
Date of Test	Apr.11, 2021 - Oct.08, 2021
Test Result	Pass

Prepared By	Kelly Cheng (Project Engineer)	Oct. 08, 2021
Reviewed By	Calvin Liu (Reviewer)	Oct. 08, 2021
Approved By	Max Zhang (Authorized Officer)	Oct. 08, 2021

2. PRODUCT INFORMATION

2.1 PRODUCT TECHNICAL DESCRIPTION

Hardware Version	Blink1-RX-MAIN_V1.1
Software Version	V1.1
Frequency Band	1920 MHz to 1930 MHz
Operation Frequency Range	1921.536 MHz to 1928.448 MHz
Equipment Type	Portable Part (PP)
Type of Modulation	Digital (Gaussian Frequency Shift Keying)
Modulation Technique	GFSK
Number of channels	5 RF Channels, 5 × 12 = 60 TDMA Duplex Channels
Channel Separation	1728 kHz
Maximum Transmitter Power	0.45dBm
Antenna Designation	Integral Antenna
Antenna Gain	2dBi
Power Supply	DC 3.7V by battery or DC 5V by USB

Note: This device needs to be tested and connected according to FP, but it is not a fixed device.

2.2 TEST FREQUENCY LIST

Frequency Band	Channel Number	Frequency
1920~1930MHz	0	1928.448 MHz
	1	1926.720 MHz
	2	1924.992 MHz
	3	1923.264 MHz
	4	1921.536 MHz
Note: All channels operation in the 1920-1930 MHz band, meeting the requirement of FCC 47 CFR Part 15.303		

2.3 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for FCC ID: 2ARN3-BLINK1RX, 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 C63.4-2014	American National Standard for Methods of Measurement of Radio- Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
4	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
5	ANSI C63.17-2013	American National Standard Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices

2.5 AUTOMATIC DISCONTINUATION OF TRANSMISSION

Does the EUT transmit Control and Signaling Information?

☒ Yes	☐ No

Type of EUT:

☐ Initiating Device	☒ Responding Device

The following tests simulate the reaction of the EUT in case of either absence of information to transmit or operational failure after a connection with the companion device is established.

No.	Test	EUT Reaction	Results
1	Power removed: EUT	A	Pass
2	Switch Off: EUT	N/A	Pass
3	Hook-On: EUT	N/A	Pass
4	Power Removed: Companion Device	B	Pass
5	Switch Off: Companion Device	B	Pass
6	Hook-On: Companion Device	B	Pass

Note:
A - Connection breakdown, Cease of all transmissions
B - Connection breakdown, EUT transmits control and signaling information
C - Connection breakdown, Companion Device transmits control and signaling information
N/A : Not Applicable (EUT does not have On/Off switch and cannot perform Hook-On)

2.6 DIGITAL MODULATION TECHNIQUES

The test sample is an isochronous digital modulated device that operates in 1920-1930 MHz band. This device bases on DECT technology described in European Standards EN 300 175-2 and EN 300 175-3, now operating in frequency channels mentioned above.

The operating modes are using Digital GFSK (Gaussian Frequency Shift Keying) modulation.

For further details see operational description provided by manufacturer.

2.7 SPECIAL ACCESSORIES

Not available for this EUT intended for grant.

2.8 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 antennathat uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a brokenantenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. **15.317 requirement:** An unlicensed PCS device must meet the antenna requirement of §15.203.
EUT Antenna:
The non-detachable antenna inside the device cannot be replaced by the user at will. The gain of the antenna is 2 dBi.

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 be in compliance with 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 be in compliance with 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.

3.3 ENVIRONMENTAL CONDITIONS

	NORMAL CONDITIONS	EXTREME CONDITIONS
Temperature range (℃)	22	-20 - 50
Relative humidty range	38 %	38 %
Pressure range (kPa)	--	--
DC Power supply(V)	3.7	3.145 - 4.255
Note: The Extreme Temperature and Extreme Voltages declared by the manufacturer.		

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 = ±3.1 dB
Uncertainty of Radiated Emission below 1GHz	U_c = ±4.0 dB
Uncertainty of Radiated Emission above 1GHz	U_c = ±4.8 dB
Uncertainty of total RF power, conducted	U_c = ±0.8 dB
Uncertainty of RF power density, conducted	U_c = ±2.6 dB
Uncertainty of spurious emissions, conducted	U_c = ±2 %
Uncertainty of Occupied Channel Bandwidth	U_c = ±2 %

3.5 LIST OF EQUIPMENTS USED

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Test Receiver	R&S	ESPI	101206	May 15, 2020	May 14, 2021
Test Receiver	R&S	ESPI	101206	May 15, 2021	May 14, 2022
LISN	R&S	ESH2-Z5	100086	Jul. 03,2020	Jul. 02, 2021
LISN	R&S	ESH2-Z5	100086	Jun. 09, 2021	Jun. 08, 2022
Test Receiver	R&S	ESCI	10096	May 15, 2020	May 14, 2021
TEST RECEIVER	R&S	ESCI	10096	May 15, 2021	May 14, 2022
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 07, 2020	Dec. 06, 2021
EXA Signal Analyzer	KEYSIGHT	N9020B	MY56101792	Jun. 07, 2020	Jun. 06, 2021
EXA Signal Analyzer	KEYSIGHT	N9020B	MY56101792	Jun. 07, 2021	Jun. 06, 2022
Digital Radiocommunication Tester	R&S	CMD60	82567310043	Dec. 07, 2020	Dec. 06, 2021
2.4GHz Fliter	Micro-tronics	087	N/A	Mar. 23, 2020	Mar. 22, 2022
Attenuator	ZHINAN	E-002	N/A	Sep. 03, 2020	Sep. 02, 2022
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Oct. 09, 2019	Oct. 08, 2021
Active Loop Antenna (9K-30mhz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	May 17, 2019	May 16, 2021
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2022
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Sep. 03, 2020	Sep. 02, 2022
Antenna	SCHWARZBECK	VULB9168	494	Jan. 08, 2021	Jan. 07, 2023
H & T Chamber	Test EQ	ETH225-40A	WIT-05121302	Feb. 28, 2021	Feb. 27, 2022
Spectrum Analyzer	Agilent	E4440A	US41421290	Jul. 22, 2021	Jul. 22, 2022
MXG Vector Signal Generator	Agilent	N5182B	MY53050647	Aug. 21,2020	Aug. 20,2021
PSG Analog Signal Generator	Agilent	E8257D	MY45141029	Aug. 21,2020	Aug. 20,2021
MXG Vector Signal Generator	Agilent	N5182B	MY53050647	Aug. 21,2021	Aug. 20,2022
PSG Analog Signal Generator	Agilent	E8257D	MY45141029	Aug. 21,2021	Aug. 20,2022
Universal Switch Control Unit	JS TONSCEND	---	N/A	---	---

RF Test Platform for DECT RTX	RXT	2012 HS-RF	1239-6203	Jun. 20, 2021	Jun. 19, 2022
WIDEBAND REQUENCY ANTENNA	SCHWARZBECK	VULB9168	VULB9168-494	Mar. 11, 2021	Mar. 11, 2022
Pyramidal Horn Antenna	EM	EM-AH-10180	67	Mar. 02, 2021	Feb. 27, 2022
Pyramidal Horn Antenna	EM	EM-AH-10180	74	Mar. 02, 2021	Feb. 27, 2022
Test software	R&S	ES-K1(Ver.V1.71)	N/A	N/A	N/A
Test software	FARA	EZ-EMC (Ver RA-03A)	N/A	N/A	N/A

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.

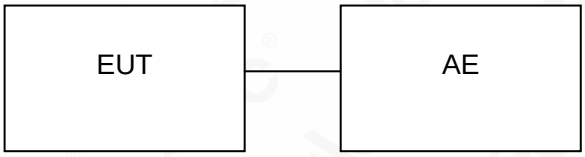
4.2 EUT EXERCISE

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 Manufacturer

Item	Equipment	Model No.	Identifier	Note
1	TDMA Wireless Microphone System	Blink1 RX	FCC ID: 2ARN3-BLINK1RX	EUT
2	Battery	603048	DC 3.7V 950mAh	Accessories
3	USB Cable	N/A	N/A	Accessories
4	earphone	N/A	N/A	Accessories
5	microphone	N/A	N/A	Accessories

☒ Test Accessories Come From The Laboratory

Item	Equipment	Model No.	Identifier	Note
1	Adapter	MID210	Input: 100-240V, 50/60Hz Output: DC 5V 1A	Accessories

4.5 SUMMARY OF TEST RESULTS

No.	FCC Rules	Description Of Test	Reference Method	Result
1	§15.203, §15.317	Antenna Equipment	Declaration & Visual inspection	Pass
2	§15.323 (c)(e)	Specific Requirements For Upcs Device	ANSI C63.17-2013 Clause 6.2, 7.3, 7.5, 8.1, 8.2, 8.3, 8.4 and Paragraph 4	Pass
3	§15.303	Channel Frequency	Declaration	Pass
4	§15.319 (b)	Digital Modulation Techniques	Declaration	Pass
5	§15.319 (f)	Automatic Discontinuation of Transmission	Manual evaluation	Pass
6	§15.319(c)(e), §15.31(e)	Peak Transmit Power And Antenna Gain	ANSI C63.17-2013 Clause 6.1.2	Pass
7	§15.323 (a)	Emission Bandwidth&Occupied Bandwidth	ANSI C63.17-2013 Clause 6.1.3 or 7.4	Pass
8	§15.319 (d)	Power Spectral Density	ANSI C63.17-2013 Clause 6.1.5	Pass
9	§15.323 (d)	In-Band Emission	ANSI C63.17-2013 Clause 6.1.6.1	Pass
10	§15.323 (d)	Out-of-Band Emission	ANSI C63.17-2013 Clause 6.1.6.2	Pass
11	§15.323 (f)	Carrier Frequency Stability	ANSI C63.17-2013 Clause 6.2.1	Pass
12	§15.319(g), §15.323(d) §15.209(a), §15.109(a)	Radiated Emission	ANSI C63.10-2013 Clause 11.11 & Clause 11.12	Pass
13	§15.207, §15.315	AC Power Line Conducted Emission	ANSI C63.10-2013 Section 6.2	Pass

Note: 1) N/A: In this whole report not applicable.

5. DESCRIPTION OF TEST MODES

Summary table of Test Cases	
Test Item	Modulation
	DECT/GFSK
Radiated&Conducted Test Cases	Mode 1: TX CH00_1928.448 MHz Mode 2: TX CH02_1924.992 MHz Mode 3: TX CH04_1921.536 MHz
AC Conducted Emission	Mode 4: Charging+Wireless mode (Connect to Line out+earphone+adapter)

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

6. EMISSION BANDWIDTH & OCCUPIED BANDWIDTH

6.1 PROVISIONS APPLICABLE

Please refer to FCC 47 CFR Part 15.319(c) &15.319(e) for specification details：

Operation shall be contained within the 1920–1930 MHz band. The emission bandwidth shall be less than 2.5 MHz. The power level shall be as specified in § 15.319(c), but in no event shall the emission bandwidth be less than 50 kHz

6.2 MEASUREMENT PROCEDURE

The testing follows the ANSI C63.17-2013 Section 6.1.2

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.
2. The EUT shall transmit in a burst mode (shall not be configured to transmit continuously) so that transient effects associated with the burst edges are captured by the emission bandwidth measurement.
3. Use the following spectrum analyzer settings:

a) Set RBW: Approximately 1% of the emission bandwidth (a rough estimate may be obtained from peak power level measurement, or use manufacturer's declared value).

b) Set the video bandwidth (VBW) ⩾ 3 x RBW.

c) Center frequency: Nominal center frequency of channel.

d) Span: ⩾ 2 × the expected emission bandwidth.

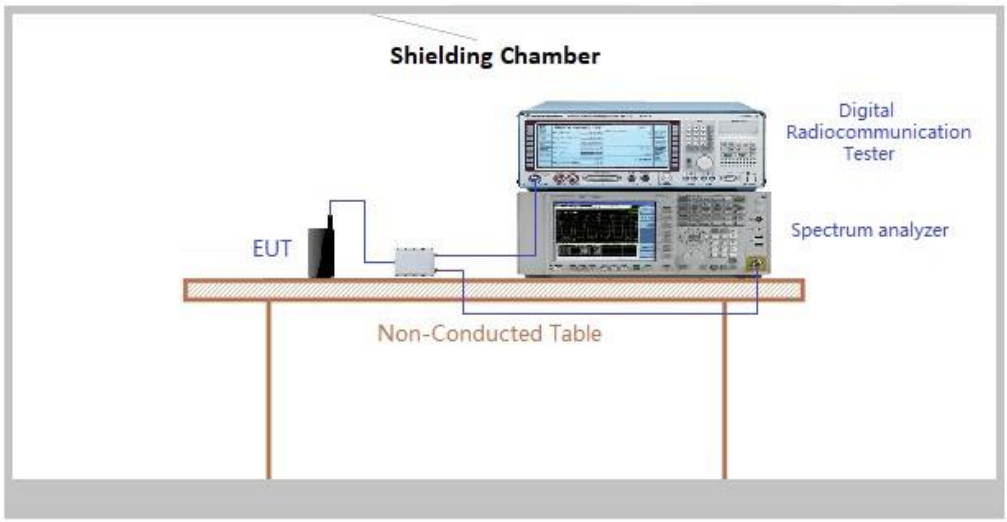
e) Sweep time: Coupled to frequency span and RBW.

f) Amplitude scale: Log.

g) Detection: Peak detection with maximum hold enabled.

4. Record the maximum level of the modulated carrier. Find the two furthest frequencies above and below the frequency of the maximum level of the modulated carrier where the signal level is 26 dB below the peak level of the carrier. The difference in frequency between these two frequencies is the emission bandwidth

6.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)

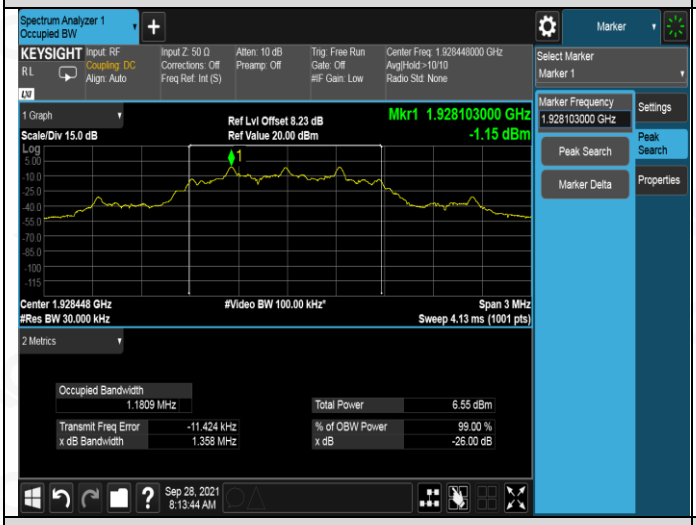


6.4 MEASUREMENT RESULT

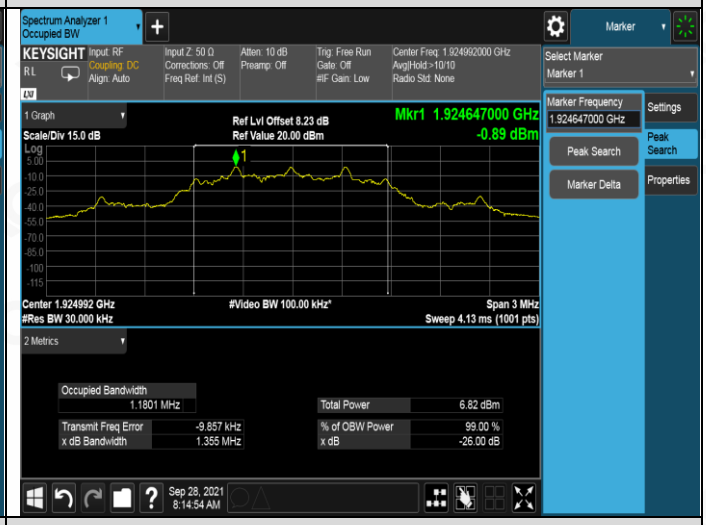
Test Channel	Test Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limits	Pass or Fail
00	1928.448	1.1809	1.358	50 kHz< Limits<2.5MHz	Pass
02	1924.992	1.1801	1.355	50 kHz< Limits<2.5MHz	Pass
04	1921.536	1.1808	1.340	50 kHz< Limits<2.5MHz	Pass

Test plot as follows:

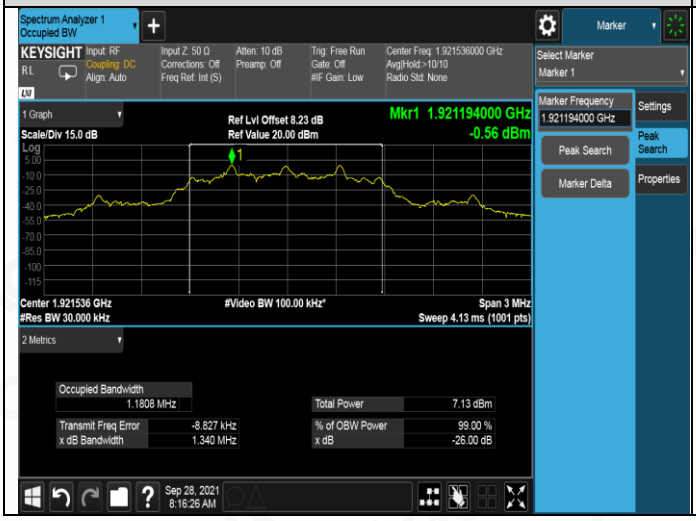
Channel 0



Channel 2



Channel 4



7. PEAK TRANSMIT POWER

7.1 PROVISIONS APPLICABLE

Please refer to FCC 47 CFR Part 15.319(c) &15.319(e) for specification details：

Peak transmit power shall not exceed 100 microwatts multiplied by the square root of the emission bandwidth in hertz. Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

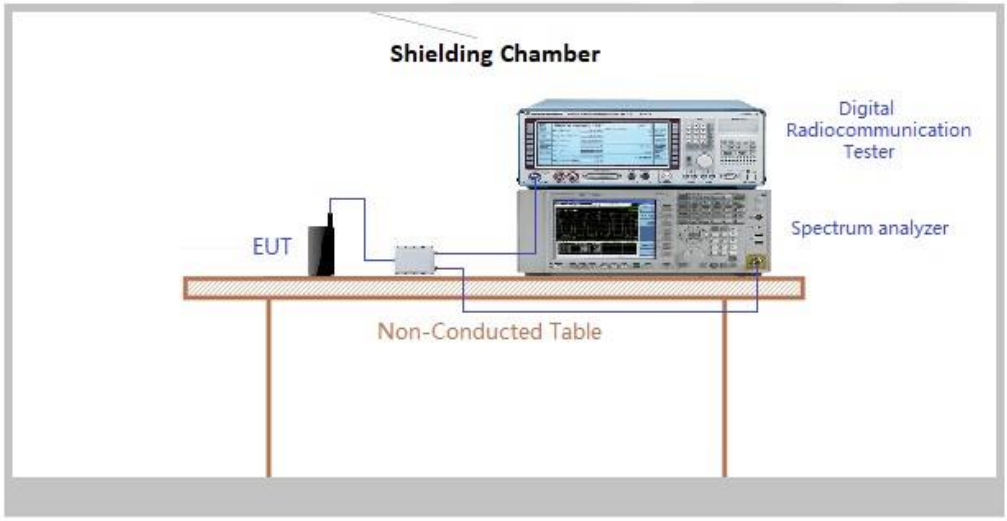
The peak transmit power shall be reduced by the amount in decibels that the maximum directional gain of the antenna exceeds 3 dBi.

7.2 MEASUREMENT PROCEDURE

The testing follows the ANSI C63.17-2013 Section 6.1.2

RBW	≥ Emission bandwidth
Video bandwidth	≥ RBW
Span	Span Zero
Center frequency	Nominal center frequency of transmit carrier
Amplitude scale	Log (linear may be used if analyzer has sufficient linear dynamic range and accuracy)
Detection	Peak detection
Trigger Video	Trigger Video
Sweep rate	Sufficiently rapid to permit the transmit pulse to be resolved accurately

7.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)

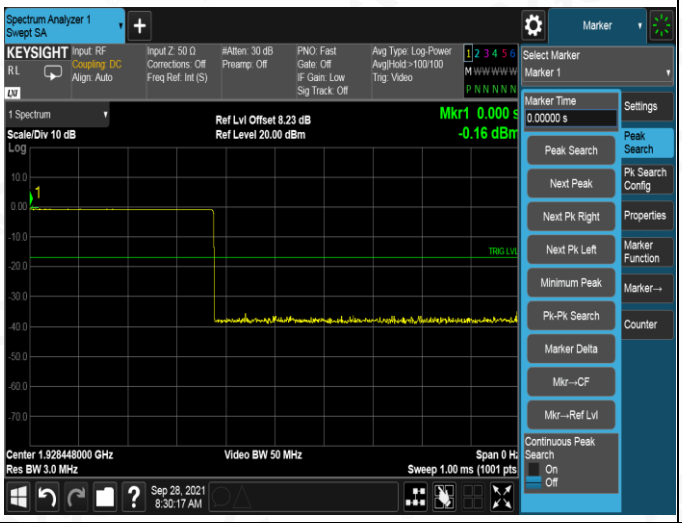


7.4 MEASUREMENT RESULT

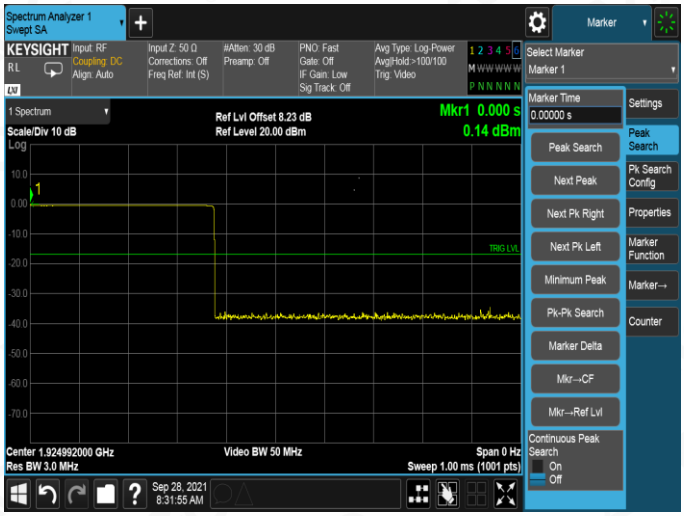
Test Channel	Test Frequency (MHz)	Maximum Antenna Gain (dBi)	Maximum Conducted Peak Transmit Power (dBm)	Maximum Radiated Peak Transmit Power (dBm)	Limits (dBm)	Pass / Fail
00	1928.448	2	-0.16	1.84	≤20.8	Pass
02	1924.992	2	0.14	2.14	≤20.8	Pass
04	1921.536	2	0.45	2.45	≤20.8	Pass
Note: Peak Transmit Power Limit = 10*log (100μW x (EBW)$^{1/2}$ ÷1000)						

Test plot as follows:

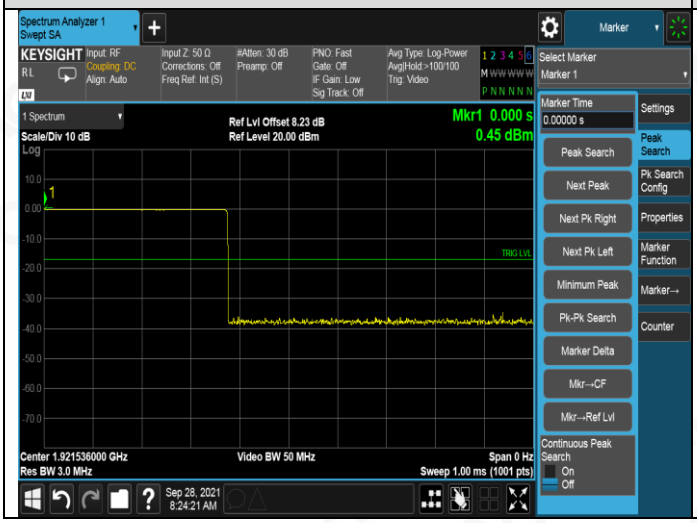
Channel 0



Channel 2



Channel 4



8. POWER SPECTRAL DENSITY

8.1 PROVISIONS APPLICABLE

Please refer to FCC 47 CFR Part 15.319(d) for specification details：

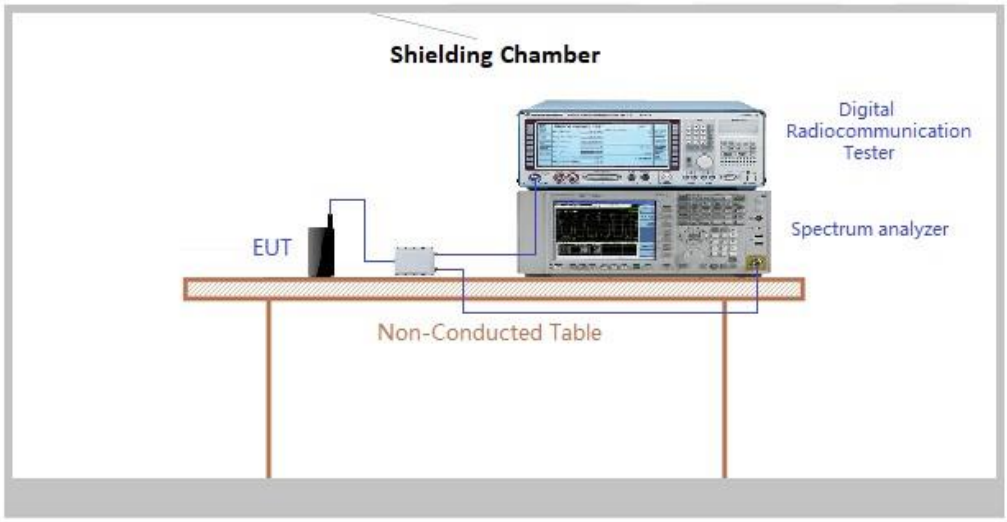
Power spectral density shall not exceed 3 milliwatts in any 3 kHz bandwidth as measured with a spectrum analyzer having a resolution bandwidth of 3 kHz.

8.2 MEASUREMENT PROCEDURE

The testing follows the ANSI C63.17-2013 Section 6.1.5

RBW	3 kHz
Video bandwidth	≥ 3*RBW
Span	Span Zero
Center frequency	Nominal center frequency of transmit carrier
Amplitude scale	Log Power
Detection	Sample detection and averaged for a minimum of 100 sweeps
Trigger Video	External or internal
Sweep Time	For burst signals, sufficient to include essentially all of the maximum length burst at the output of a 3 kHz filter (e.g., maximum input burstduration plus 600 μs). For continuous signals, 20 ms.

8.2 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)

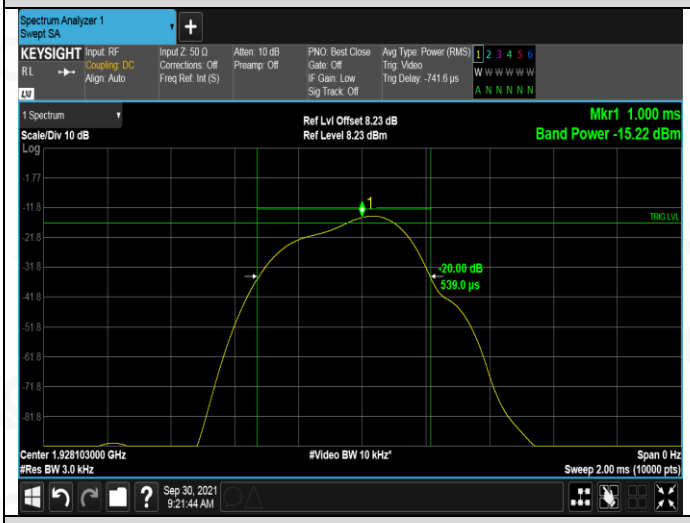


8.3 MEASUREMENT RESULTS

Test Channel	Test Frequency (MHz)	Power density (dBm/3kHz)	Power density (mW/3kHz)	Limit (mW/3kHz)	Pass or Fail
00	1928.448	-15.22	0.030	≤3	Pass
02	1924.992	-15.44	0.029	≤3	Pass
04	1921.536	-15.34	0.029	≤3	Pass

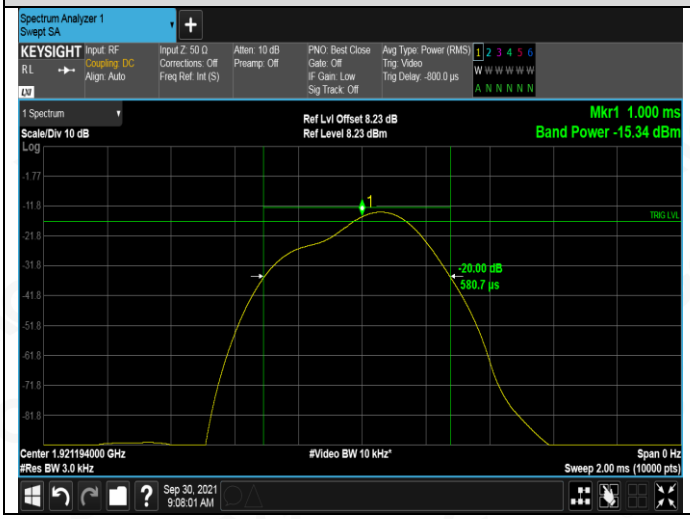
Test plot as follows:

Channel 0



Channel 2

Channel 4



9. IN-BAND UNWANTED EMISSIONS

9.1 PROVISIONS APPLICABLE

Please refer to FCC 47 CFR Part 15.323(d) for specification details：

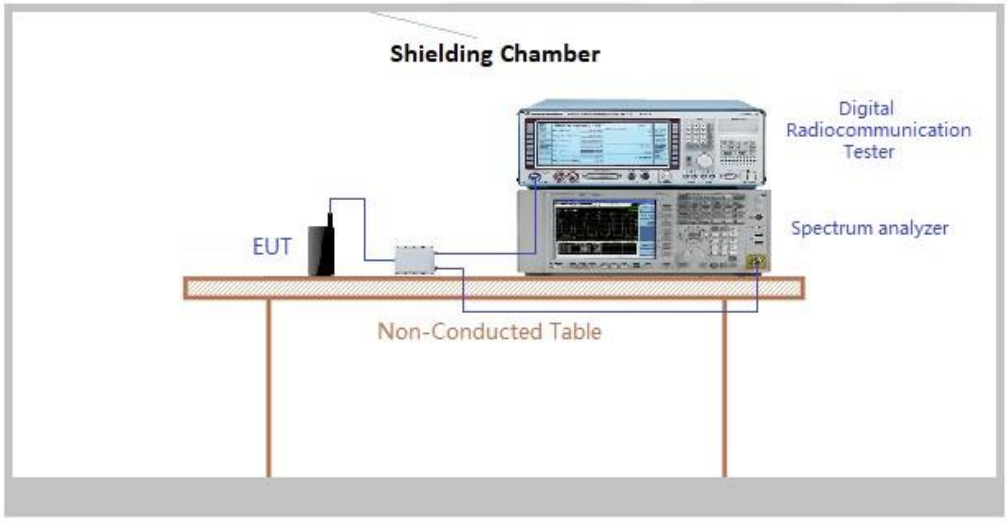
Emissions inside the band must comply with the following emission mask: In the bands between 1B and 2B measured from the center of the emission bandwidth the total power emitted by the device shall be at least 30 dB below the transmit power permitted for that device; in the bands between 2B and 3B measured from the center of the emission bandwidth the total power emitted by an intentional radiator shall be at least 50 dB below the transmit power permitted for that radiator; in the bands between 3B and the band edge the total power emitted by an intentional radiator in the measurement bandwidth shall be at least 60 dB below the transmit power permitted for that radiator. B'' is defined as the emission bandwidth of the device in hertz. Compliance with the emission limits is based on the use of measurement instrumentation employing peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

9.2 MEASUREMENT PROCEDURE

The testing follows the ANSI C63.17-2013 Section 6.1.6.1

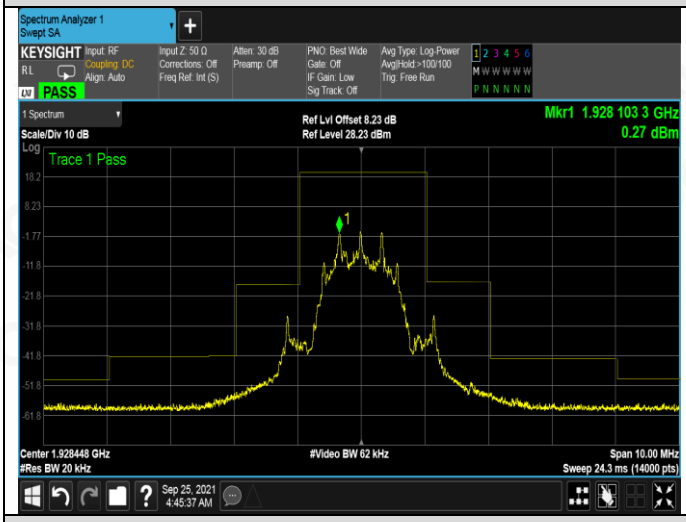
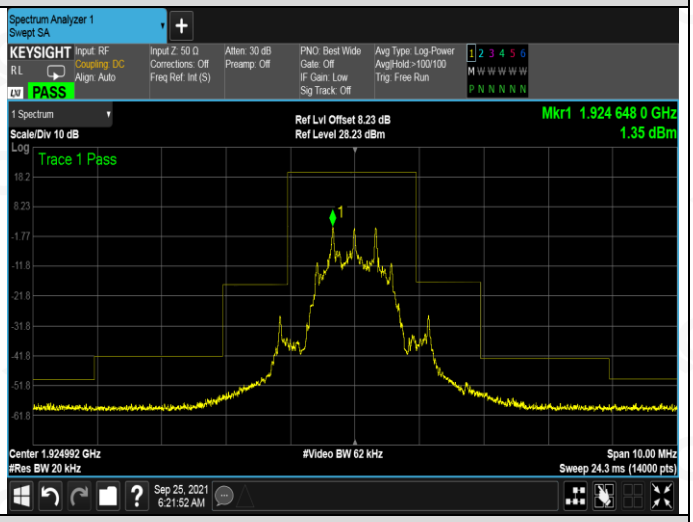
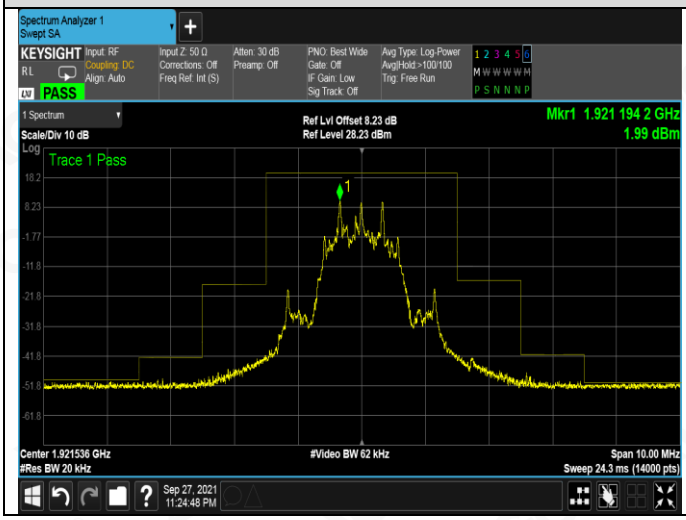
RBW	Approximately 1% of the Emission bandwidth (B)
Video bandwidth	≥ 3*RBW
Span	Approximately equal to 3.5 B
Center frequency	Nominal center frequency of transmit carrier
Detection	Peak detection and max hold enabled
Amplitude scale	Log
Sweep Time	The sweep time shall be sufficiently slow that the swept frequency rate shall not exceed one RBW per threetransmit bursts.
Number of sweeps	Sufficient to stabilize the trace

9.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)



9.4 MEASUREMENT RESULTS

Test plot as follows:

In-Band Emissions-Channel 0	In-Band Emissions-Channel 2
	
In-Band Emissions-Channel 4	
	

10. OUT-OF-BAND UNWANTED EMISSIONS

10.1 PROVISIONS APPLICABLE

Please refer to FCC 47 CFR Part 15.323(d) for specification details：

a) In the region between the band edges and 1.25 MHz below and above the lower and the upper band edges, respectively, the measured emission level shall not exceed −9.5 dBm.

b) In the region between 1.25 and 2.5 MHz below and above the lower and the upper band edges, respectively, the measured emission level shall not exceed −29.5 dBm.

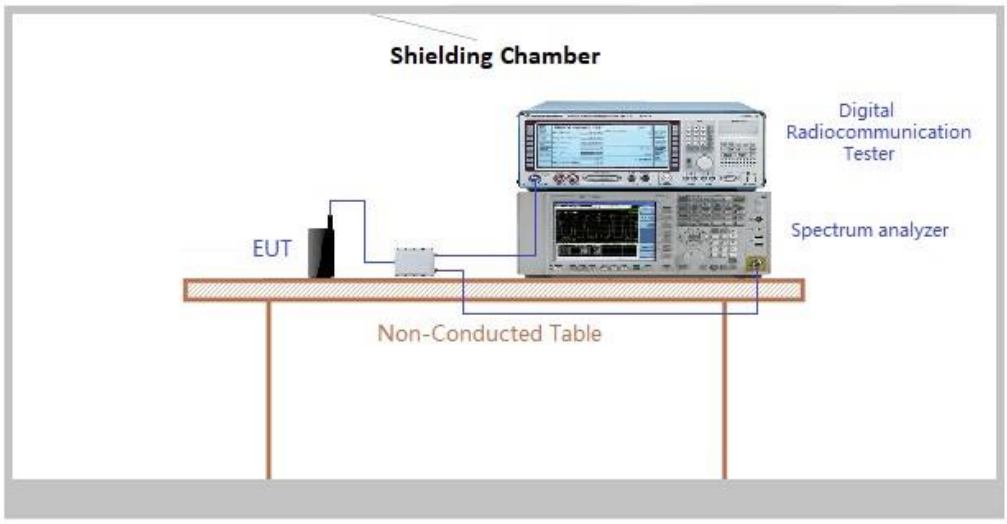
c) In the region at 2.5 MHz or greater below and above the lower and upper band edges, respectively, the measured emission level shall not exceed −39.5 dBm.

10.2 MEASUREMENT PROCEDURE

The testing follows the ANSI C63.17-2013 Section 6.1.6.2

RBW	Approximately 1% of the Emission bandwidth (B)
Video bandwidth	≥ 3*RBW
Span	Approximately equal to 3.5 B
Center frequency	Nominal center frequency of transmit carrier
Detection	Peak detection and max hold enabled
Amplitude scale	Log
Sweep Time	The sweep time shall be sufficiently slow that the swept frequency rate shall not exceed one RBW per threetransmit bursts.
Number of sweeps	Sufficient to stabilize the trace

10.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)

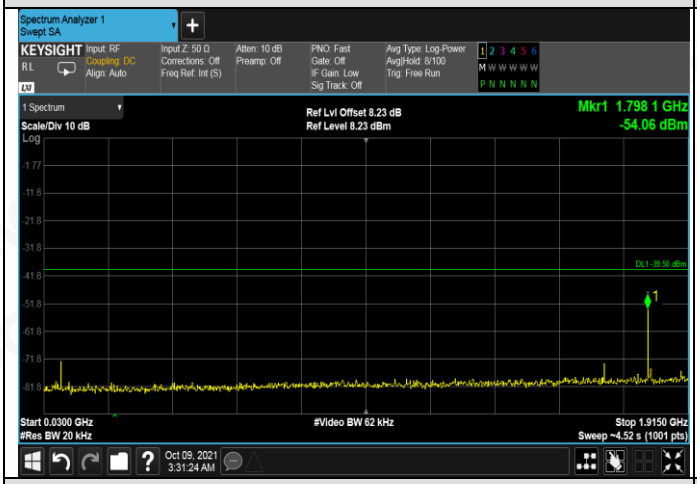


10.4 MEASUREMENT RESULTS

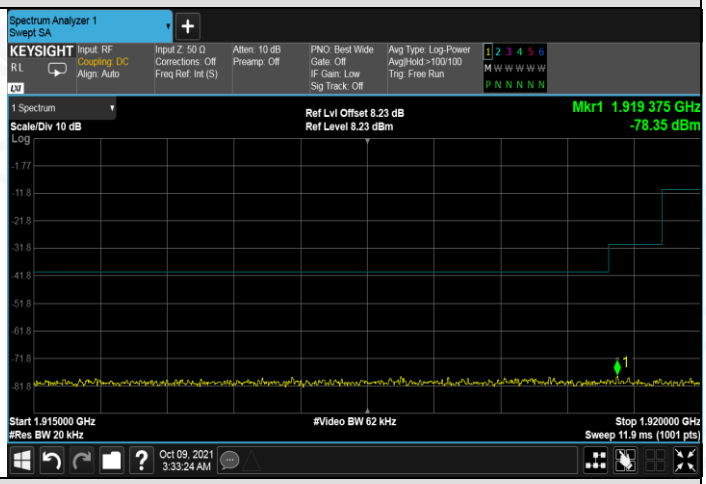
Test plot as follows:

Out-Of-Band Emissions_ Channel 00

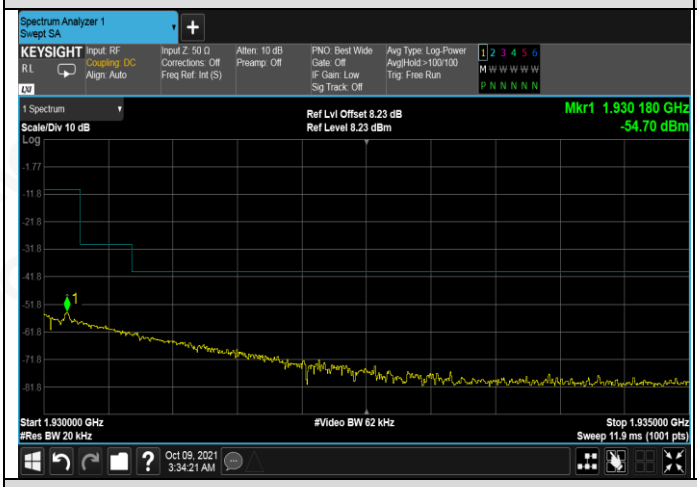
30 MHz - 1.915 GHz



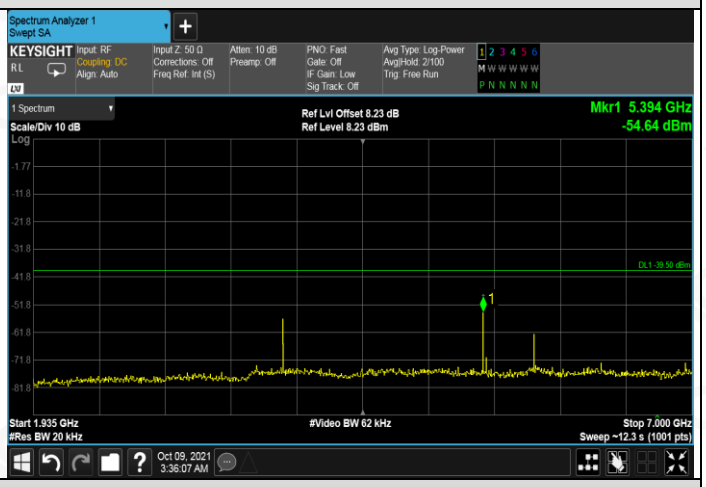
1.915 GHz - 1.920 GHz



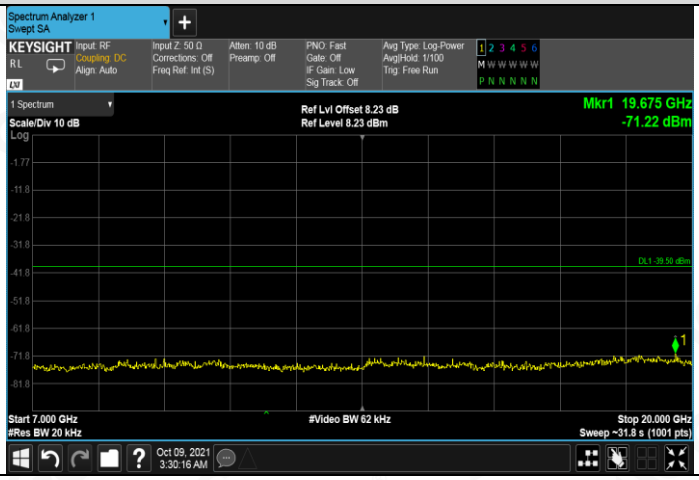
1.930 GHz - 1.935 GHz



1.935 GHz – 7 GHz

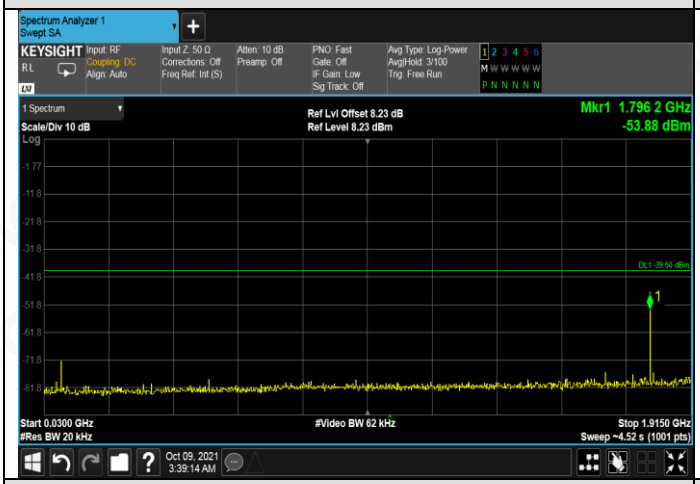


7 GHz – 20 GHz

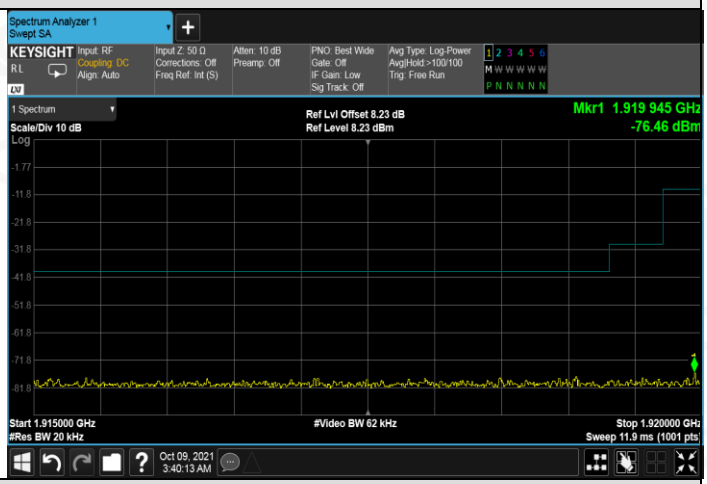


Out-Of-Band Emissions_ Channel 02

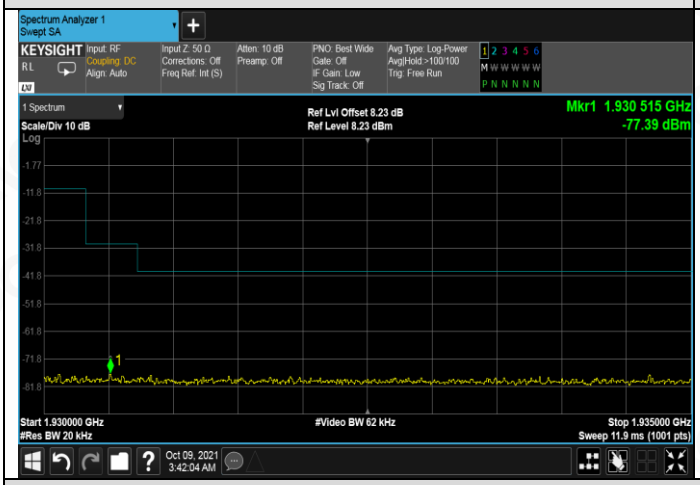
30 MHz - 1.915 GHz



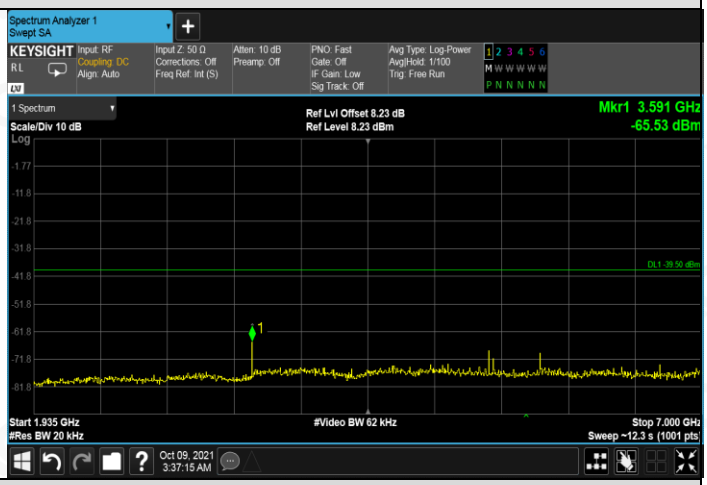
1.915 GHz - 1.920 GHz



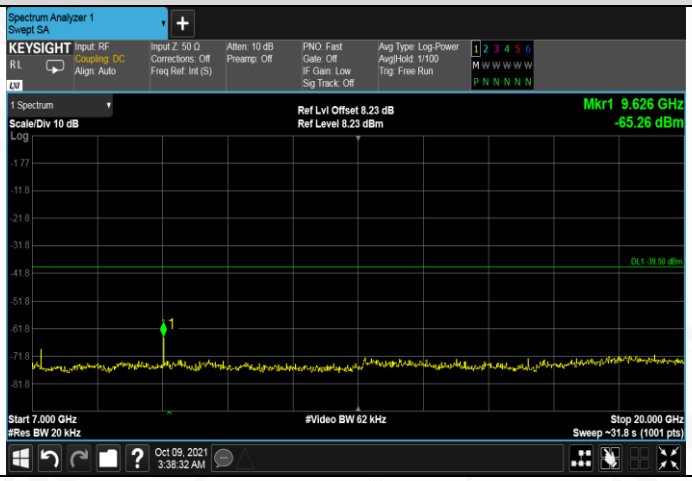
1.930 GHz - 1.935 GHz

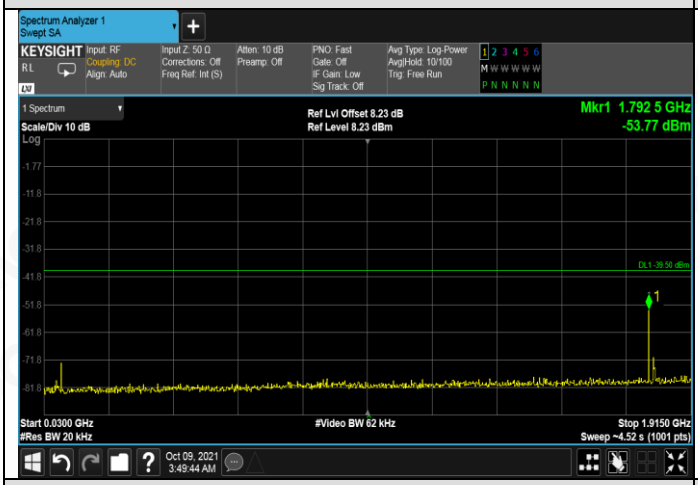
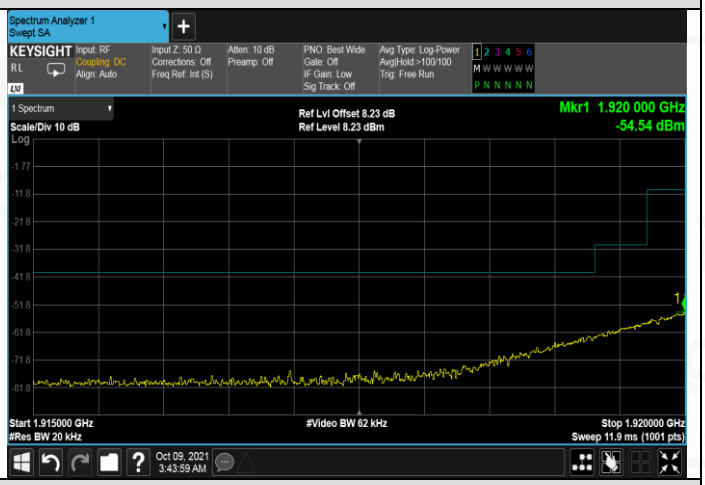
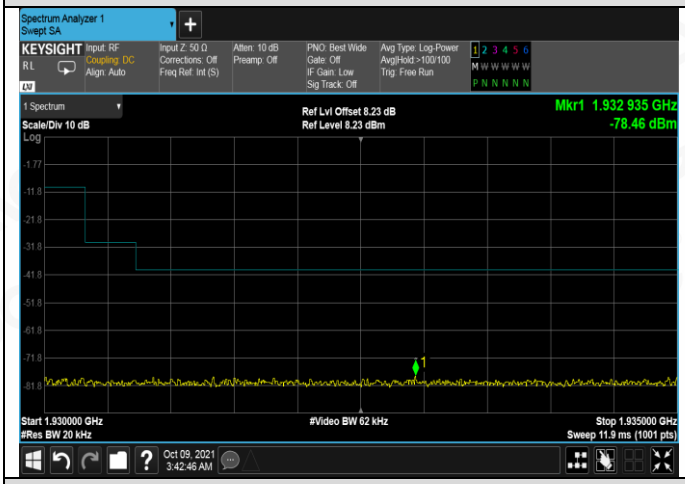
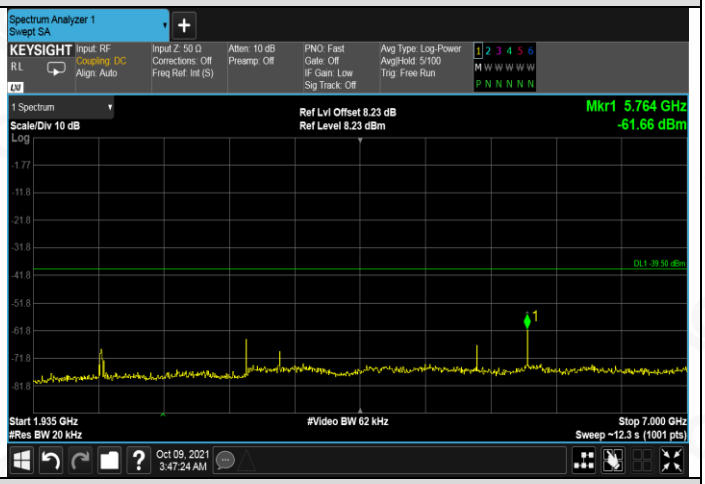
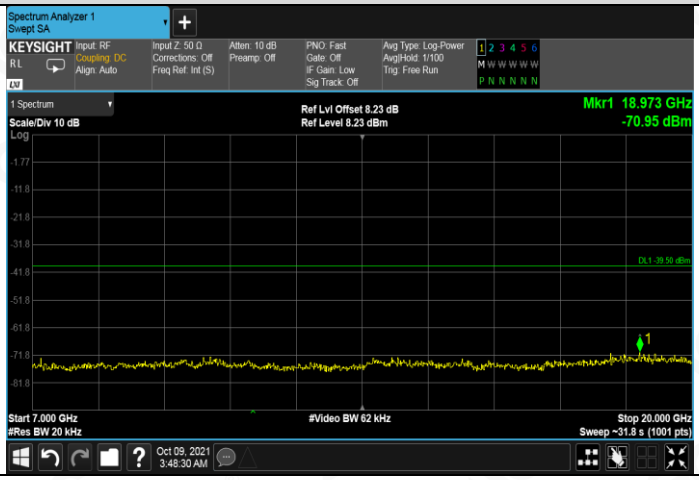


1.935 GHz – 7 GHz



7 GHz – 20 GHz



Out-Of-Band Emissions_ Channel 04	
30 MHz - 1.915 GHz	1.915 GHz - 1.920 GHz
	
1.930 GHz - 1.935 GHz	1.935 GHz – 7 GHz
	
7 GHz – 20 GHz	
	

11. RADIATED EMISSION

11.1 LIMITS OF RADIATED EMISSION TEST

15.209 Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.

11.2 MEASUREMENT PROCEDURE

1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
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.
10. 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.

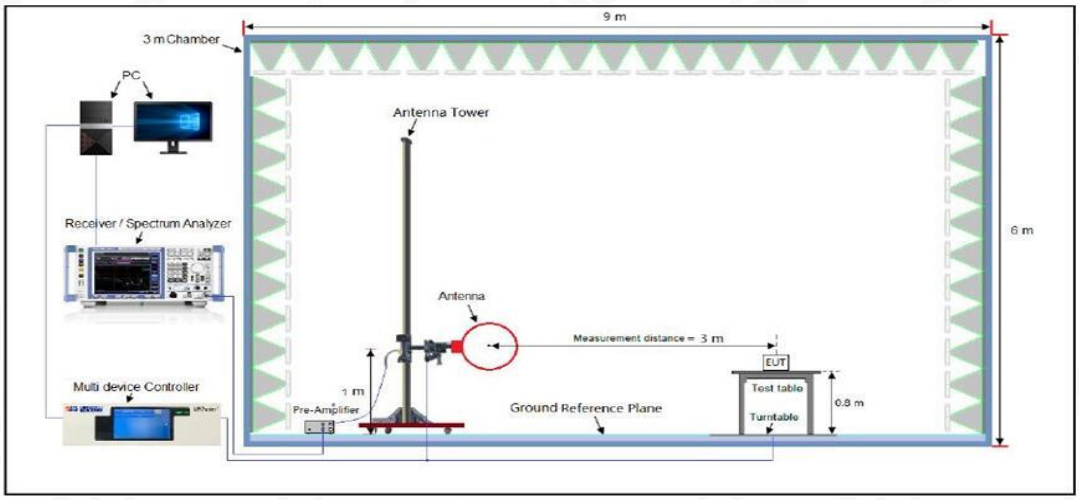
The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~26.5GHz 1MHz/3MHz for Peak, 1MHz/3MHz for Average

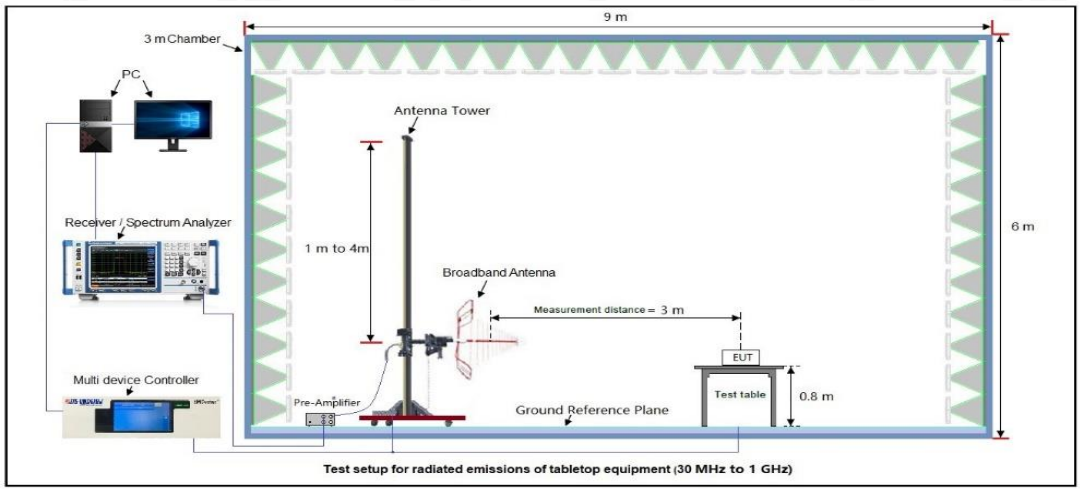
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

11.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)

RADIATED EMISSION TEST SETUP 9KHz-30MHz

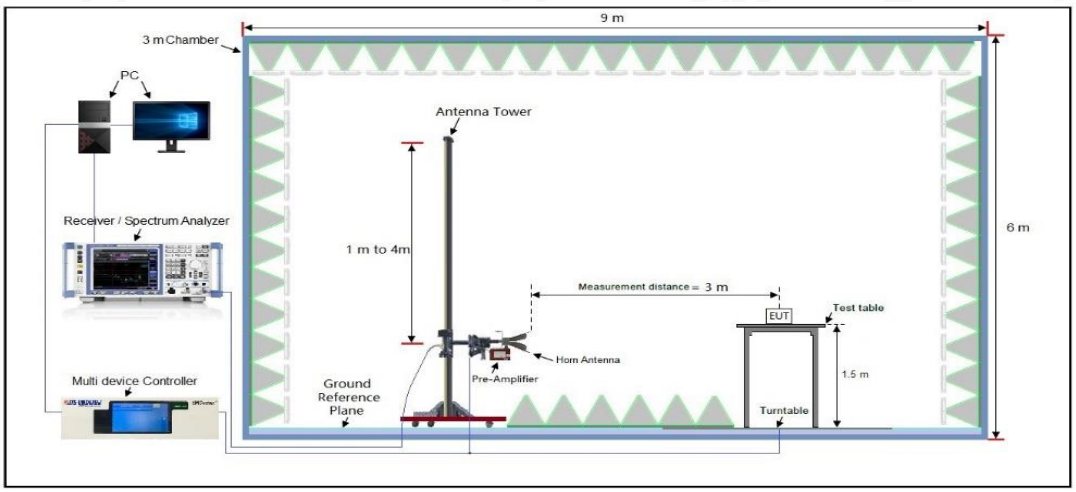


RADIATED EMISSION TEST SETUP 30MHz-1000MHz



Test setup for radiated emissions of tabletop equipment (30 MHz to 1 GHz)

RADIATED EMISSION TEST SETUP ABOVE 1000MHz



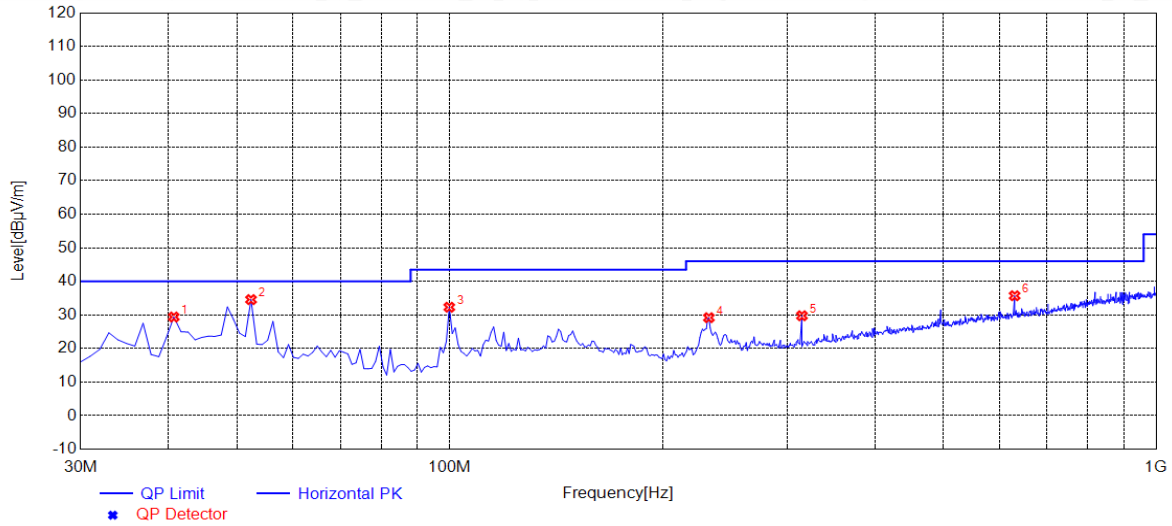
11.4 MEASUREMENT RESULT

Radiated Emission Below 30MHz

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.

Radiated Emission from 30MHz to 1000MHz

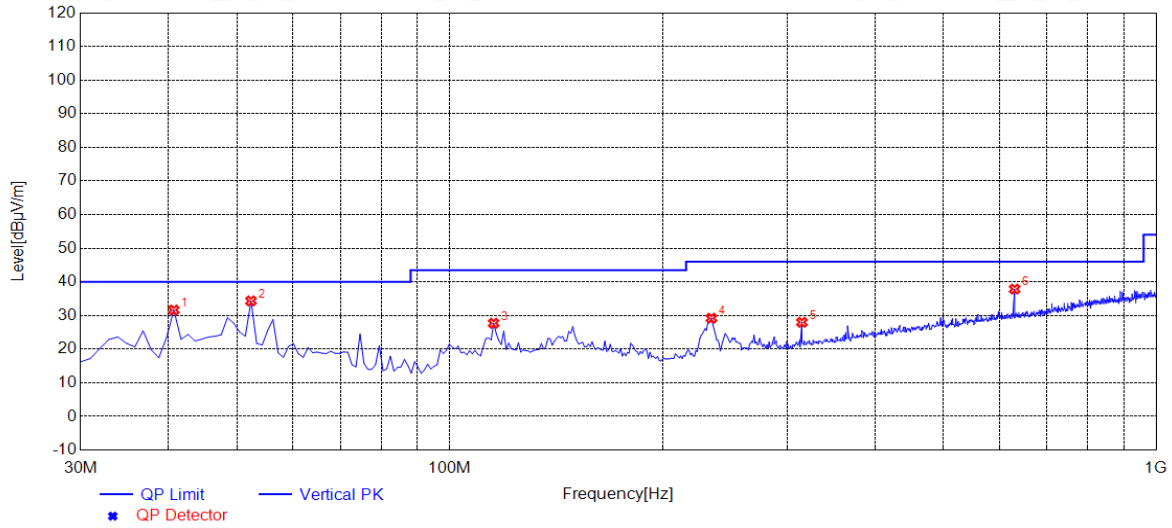
EUT	TDMA Wireless Microphone System	**Model Name**	Blink1 RX
Temperature	25° C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 3	**Antenna**	Horizontal



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	40.6700	29.38	11.91	40.00	10.62	100	137	Horizontal
2	52.3100	34.56	11.49	40.00	5.44	100	100	Horizontal
3	99.8400	32.29	11.30	43.50	11.21	100	124	Horizontal
4	232.7300	29.18	14.25	46.00	16.82	100	310	Horizontal
5	315.1800	29.75	16.48	46.00	16.25	100	41	Horizontal
6	630.4300	35.71	24.85	46.00	10.29	100	117	Horizontal

RESULT: PASS

EUT	TDMA Wireless Microphone System	Model Name	Blink1 RX
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	40.6700	31.63	11.91	40.00	8.37	100	272	Vertical
2	52.3100	34.34	11.49	40.00	5.66	100	140	Vertical
3	115.3600	27.70	12.99	43.50	15.80	100	282	Vertical
4	234.6700	29.20	14.40	46.00	16.80	100	212	Vertical
5	315.1800	27.98	16.48	46.00	18.02	100	232	Vertical
6	630.4300	37.87	24.85	46.00	8.13	100	343	Vertical

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin= Limit - Level.

2. All test modes had been pre-tested. The mode 3 is the worst case and recorded in the report.

Radiated Emission Above 1GHz

EUT	TDMA Wireless Microphone System	**Model Name**	Blink1 RX
Temperature	25° C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 1	**Antenna**	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
3856.896	44.28	0.06	44.34	74	-29.66
3856.896	37.15	0.06	37.21	54	-16.79
5785.344	40.58	2.15	42.73	74	-31.27
5785.344	32.86	2.15	35.01	54	-18.99

EUT	TDMA Wireless Microphone System	**Model Name**	Blink1 RX
Temperature	25° C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 1	**Antenna**	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
3856.896	43.97	0.06	44.03	74	-29.97
3856.896	36.42	0.06	36.48	54	-17.52
5785.344	40.01	2.15	42.16	74	-31.84
5785.344	31.56	2.15	33.71	54	-20.29

EUT	TDMA Wireless Microphone System	Model Name	Blink1 RX
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)
3849.984	45.76	0.05	45.81	74	-28.19
3849.984	38.18	0.05	38.23	54	-15.77
5774.976	41.62	2.13	43.75	74	-30.25
5774.976	34.26	2.13	36.39	54	-17.61

EUT	TDMA Wireless Microphone System	Model Name	Blink1 RX
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)
3849.984	45.28	0.05	45.33	74	-28.67
3849.984	37.65	0.05	37.7	54	-16.3
5774.976	40.92	2.13	43.05	74	-30.95
5774.976	33.78	2.13	35.91	54	-18.09