TEST REPORT

Product Name:	DECT IP Phone
Trade Mark:	YEALINK
Model No. / HVIN:	W59R
Add. Model No. / HVIN:	N/A
Report Number:	200518021RFC-3
Test Standards:	FCC 47 CFR Part 15 Subpart D RSS-213 Issue 3 RSS-Gen Issue 5
FCC ID:	T2C-W59R
IC:	10741A-W59R
Test Result:	PASS
Date of Issue:	June 18, 2020

Prepared for:

YEALINK(XIAMEN) NETWORK TECHNOLOGY CO.,LTD.
309, 3rd Floor, No.16, Yun Ding North Road, Huli District, Xiamen City, Fujian, P.R. China

Prepared by:

Shenzhen UnionTrust Quality and Technology Co., Ltd.
16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China
TEL: +86-755-2823 0888
FAX: +86-755-2823 0886

Prepared by: Henry Lu, Team Leader

Reviewed by: Kevin Liang, Assistant Manager

Approved by: Billy Li, Technical Director

Date: June 18, 2020

Version

Version No.	Date	Description
V1.0	June 18, 2020	Original

CONTENTS

1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	YEALINK(XIAMEN) NETWORK TECHNOLOGY CO.,LTD.
Address of Applicant:	309, 3rd Floor, No.16, Yun Ding North Road, Huli District, Xiamen City, Fujian, P.R. China
Manufacturer:	YEALINK(XIAMEN) NETWORK TECHNOLOGY CO.,LTD.
Address of Manufacturer:	309, 3rd Floor, No.16, Yun Ding North Road, Huli District, Xiamen City, Fujian, P.R. China

1.2 EUT INFORMATION

1.2.1 General Description of EUT

Product Name:	DECT IP Phone	
Model No. / HVIN:	W59R	
Add. Model No. / HVIN:	N/A	
Trade Mark:	YEALINK	
DUT Stage:	Production Unit	
EUT Supports Function:	2.4 GHz ISM Band:	Bluetooth V5.0 (Not support 2LE and LE Code mode)
	DECT 6.0:	1 920 MHz to 1 930 MHz
Software Version:	115.83.250.58	
Hardware Version:	115.0.0.11	
Sample Received Date:	May 25, 2020	
Sample Tested Date:	May 28, 2020 to June 17, 2020	

1.2.2 Description of Accessories

Adapter 1	
Trade Mark:	Yealink
Model No.:	YLPS050600C1-US
Input:	100-240 V~50/60 Hz 0.2 A
Output:	5.0 V ⎓ 0.6 A
AC Cable:	N/A
DC Cable:	1.8 Meter, Unshielded without ferrite

Adapter 2	
Trade Mark:	Yealink
Model No.:	YLPS050600B1-US
Input:	100-240 V~50/60 Hz 0.2 A
Output:	5.0 V ⎓ 0.6 A
AC Cable:	N/A
DC Cable:	1.8 Meter, Unshielded without ferrite

Battery	
Model No.:	YL-5J
Battery Type:	Lithium-ion Rechargeable Battery
Rated Voltage:	3.7 Vdc
Limited Charge Voltage:	4.2 Vdc
Rated Capacity:	1460 mAh

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

Frequency Band:	1920 MHz to 1930 MHz	
Frequency Range:	1921.536 MHz to 1928.448 MHz	
Equipment Type:	Portable Part (PP)	
Type of Modulation:	Digital: GFSK	
Number of Channels:	5	
Channel Spacing:	1728 kHz	
Antenna Type:	Antenna 1:	Integral Antenna
	Antenna 2:	Integral Antenna
Antenna Gain:	Antenna 1:	0 dBi
	Antenna 2:	0 dBi
Maximum Peak Power:	19.99 dBm	
Emission Designator:	F7D	
Normal Test Voltage:	3.7 Vdc	
Extreme Test Voltage:	3.58 Vdc to 4.2 Vdc	
Extreme Test Temperature:	-20 °C to +50 °C	

1.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested with associated equipment below.

1) Support Equipment

Description	Manufacturer	Model No.	Serial Number	Supplied by
Notebook	Lenovo	E450	SL10G10780	UnionTrust
4 Way Divider	WOKEN	0120A040560002D	N/A	UnionTrust

2) Support Cable

Cable No.	Description	Connector	Length	Supplied by
1	Antenna Cable	SMA	0.15 Meter	Applicant
2	RF Cable * 3	SMA	0.6 Meter	UnionTrust
3	USB Cable	USB Micro-B	1.8 Meter	Applicant

1.5 TEST LOCATION

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: 16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China
Telephone: +86 (0) 755 2823 0888
Fax: +86 (0) 755 2823 0886

1.6 TEST FACILITY

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

CNAS-Lab Code: L9069
The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC/EN 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

A2LA-Lab Certificate No.: 4312.01
Shenzhen UnionTrust Quality and Technology Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

ISED Wireless Device Testing Laboratories
CAB identifier: CN0032

FCC Accredited Lab.
Designation Number: CN1194
Test Firm Registration Number: 259480

1.7 DEVIATION FROM STANDARDS

None.

1.8 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

1.10 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Measurement Uncertainty
1	Conducted emission 9KHz-150KHz	±3.2 dB
2	Conducted emission 150KHz-30MHz	±2.7 dB
3	Radiated emission 9KHz-30MHz	± 4.7 dB
4	Radiated emission 30MHz-1GHz	± 4.6 dB
5	Radiated emission 1GHz-18GHz	± 4.4 dB
6	Radiated emission 18GHz-26GHz	± 4.6 dB
7	Radiated emission 26GHz-40GHz	± 4.6 dB

2. TEST SUMMARY

Test Cases			
Test Item	**Test Requirement**	**Reference Method**	**Result**
Antenna Requirement	FCC 47 CFR Part 15.203/ 15.317 RSS-Gen Issue 5, Section 6.8	Declaration & Visual inspection	PASS
AC Power Line Conducted Emission	FCC 47 CFR Part 15.207/ 15.315 RSS-213 Issue 3, Section 5.4	ANSI C63.10-2013 Section 6.2	PASS
Digital Modulation Techniques	FCC 47 CFR Part 15.319(b) RSS-213 Issue 3, Section 5.1	Declaration	PASS
Channel Frequencies	FCC 47 CFR Part 15.303 RSS-213 Issue 3, Section 5.1	Declaration	PASS
Automatic discontinuation of transmission	FCC 47 CFR Part 15.319(f) RSS-213 Issue 3, Section 5.2(4)	Manual evaluation	PASS
Emission Bandwidth & Occupied Bandwidth	FCC 47 CFR Part 15.323(a) RSS-213 Issue 3, Section 5.5	ANSI C63.17-2013 Clause 6.1.3 or 7.4	PASS
In-band emissions	FCC 47 CFR Part 15.323(d) RSS-213 Issue 3, Section 5.8.2	ANSI C63.17-2013 Clause 6.1.6.1	PASS
Out-of-band emissions	FCC 47 CFR Part 15.323(d) RSS-213 Issue 3, Section 5.8.1	ANSI C63.17-2013 Clause 6.1.6.2	PASS
Radiated Emissions	FCC 47 CFR Part 15.319(g)/ 15.232(d)/ 15.109(a)/ 15.209(a) RSS-Gen Issue 5, Section 8.9 RSS-213 Issue 3, Section 5.8.1	ANSI C63.10-2013 Clause 11.11 & Clause 11.12	PASS
Peak Transmit Power and Antenna Gain	FCC 47 CFR Part 15.319(c)(e), 15.31(e) RSS-213 Issue 3, Section 5.6 RSS-Gen Issue 5, Section 6.8	ANSI C63.17-2013 Clause 6.1.2	PASS
Power Spectral Density	FCC 47 CFR Part 15.319(d) RSS-213 Issue 3, Section 5.7	ANSI C63.17-2013 Clause 6.1.5	PASS
Carrier frequency stability	FCC 47 CFR Part 15.323(f) RSS-213 Issue 3, Section 5.3	ANSI C63.17-2013 Clause 6.2.1	PASS
Specific Requirements for UPCS	FCC 47 CFR Part 15.323(c) (e) RSS-213 Issue 3, Section 5.2	ANSI C63.17-2013 Clause 6.2, 7.3, 7.5, 8.1, 8.2, 8.3, 8.4 and Paragraph 4	PASS

Note:

1) N/A: In this whole report not applicable.
2) Not required if the Conducted Out-of-Band Emissions test is passed, and assessed in the FCC 47 CFR Part 15B test report.

3. EQUIPMENT LIST

Radiated Emission Test Equipment List						
Used	**Equipment**	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm dd, yyyy)**	**Cal. Due date (mm dd, yyyy)**
☒	3M Chamber & Accessory Equipment	ETS-LINDGREN	3M	N/A	Dec. 03, 2018	Dec. 03, 2021
☒	Receiver	R&S	ESIB26	100114	Nov. 24, 2019	Nov. 23, 2020
☒	Loop Antenna	ETS-LINDGREN	6502	00202525	Nov. 16, 2019	Nov. 15, 2020
☐	Broadband Antenna	ETS-LINDGREN	3142E	00201566	Nov. 16, 2019	Nov. 15, 2020
☒	6dB Attenuator	Talent	RA6A5-N-18	18103001	Nov. 16, 2019	Nov. 15, 2020
☒	Preamplifier	HP	8447F	2805A02960	Nov. 24, 2019	Nov. 23, 2020
☒	Broadband Antenna (Pre-amplifier)	ETS-LINDGREN	3142E-PA	00201891	Nov. 24, 2019	Nov. 23, 2020
☒	Horn Antenna (Pre-amplifier)	ETS-LINDGREN	3117-PA	00201874	May 18, 2019	May 18, 2020
☒	Pre-amplifier	ETS-LINDGREN	118385	00201874	Jan. 10, 2020	Jan. 10, 2021
☒	Horn Antenna (Pre-amplifier)	ETS-LINDGREN	3116C-PA	00202652	Nov. 16, 2019	Nov. 15, 2020
☒	Pre-amplifier	ETS-LINDGREN	00118384	202652	Nov. 16, 2019	Nov. 15, 2020
☒	Multi device Controller	ETS-LINDGREN	7006-001	00160105	N/A	N/A
☒	Test Software	Audix	e3	Software Version: 9.160323		

Conducted Emission Test Equipment List						
Used	**Equipment**	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm dd, yyyy)**	**Cal. Due date (mm dd, yyyy)**
☒	Receiver	R&S	ESR7	1316.3003K07 -101181-K3	Nov. 24, 2019	Nov. 23, 2020
☒	Pulse Limiter	R&S	ESH3-Z2	0357.8810.54	Nov. 24, 2019	Nov. 23, 2020
☒	LISN	R&S	ESH2-Z5	860014/024	Nov. 24, 2019	Nov. 23, 2020
☐	LISN	ETS-Lindgren	3816/2SH	00201088	Nov. 24, 2019	Nov. 23, 2020
☒	Test Software	Audix	e3	Software Version: 9.160323		

Conducted RF test Equipment List						
Used	**Equipment**	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm dd, yyyy)**	**Cal. Due date (mm dd, yyyy)**
☒	EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY51440197	Nov. 24, 2019	Nov. 23, 2020
☐	Spectrum analyzer	R&S	FSV40-N	101653	Mar. 12, 2020	Mar. 11, 2021
☒	Receiver	R&S	ESR7	101181	Nov. 24, 2019	Nov. 23, 2020
☐	EXG-B RF Analog Signal Generator	KEYSIGHT	N5171B	MY53051777	Nov. 24, 2019	Nov. 23, 2020
☒	MXG X-Series RF Vector Signal Generator	KEYSIGHT	N5182B	MY51350267	Nov. 24, 2019	Nov. 23, 2020
☒	DC Source	KIKUSUI	PWR400L	LK003024	Sep. 09, 2019	Sep. 08, 2020
☐	Temp & Humidity chamber	Espec	GL(U)04KA(W)	16921H201P3	Sep. 09, 2019	Sep. 08, 2020
☒	Temp & Humidity chamber	Votisch	VT4002	58566133290020	May 11, 2020	May 10, 2021
☒	Digital RadioCommunication tester	R&S	CMD60	82567310046	Nov. 24, 2019	Nov. 23, 2020

4. TEST CONFIGURATION

4.1 ENVIRONMENTAL CONDITIONS FOR TESTING

4.1.1 Normal or Extreme Test Conditions

Environment Parameter	Selected Values During Tests		
Test Condition	Ambient		
	Temperature (°C)	Voltage (V)	Relative Humidity (%)
TN/VN	+15 to +35	3.7Vdc or 120Vac	20 to 75
TL/VL	-20	85%	20 to 75
TH/VL	+50	85%	20 to 75
TL/VH	-20	115%	20 to 75
TH/VH	+50	115%	20 to 75

Remark:
1) The EUT just work in such extreme temperature of -20 °C to +50 °C and the extreme voltage of 85% to 115%, so here the EUT is tested in the temperature of -20 °C to +50 °C and the voltage of 85% to 115%.
2) VN: Normal Voltage; TN: Normal Temperature;
TL: Low Extreme Test Temperature; TH: High Extreme Test Temperature;
3) VL: Low Extreme Test Voltage; VH: High Extreme Test Voltage.

4.1.2 Record of Normal Environment

Test Item	Temperature (°C)	Relative Humidity (%)	Pressure (kPa)	Tested by
AC Power Line Conducted Emission	24.8	42	99.45	Bert Xiong
Automatic discontinuation of transmission	23.5	47	99.9	Hank Wu
Emission Bandwidth	23.8	53	100.1	
In-band emissions	23.8	53	100.1	
Out-of-band emissions	23.8	53	100.1	
Peak Transmit Power	24.2	49	100.0	
Power Spectral Density	24.2	49	100.0	
Specific Requirements for UPCS	24.2	49	100.0	
Carrier frequency stability	20.0	56	100.1	
Radiated Emissions	23.2	51	100.3	Fire Huo

4.2 TEST CHANNELS

Operation Frequency Each of Channels					
Channel	0	1	2	3	4
Frequency (MHz)	1928.448	1926.720	1924.992	1923.264	1921.536

Test Channels				
Type of Modulation	Tx/Rx Frequency	Test RF Channel Lists		
		Lowest(L)	Middle(M)	Highest(H)
GFSK	1920 MHz to 1930 MHz	Channel 4	Channel 2	Channel 0
		1921.536 MHz	1924.992 MHz	1928.448 MHz

All channels operation in the 1920-1930 MHz band, meeting the requirement of FCC 47 CFR Part 15.303 and RSS-213 Issue 3 Section 5.1.

4.3 EUT TEST STATUS

Type of Modulation	Tx Function	Description
GFSK	1Tx	1. Keep the EUT in continuously transmitting with modulation test single.

Power Setting
Power Setting: not applicable, test used software default power level.

Test Software
Test software name: DECT-RF-TOOL[1.0.0.3].exe;

4.4 TEST SETUP

4.4.1 For Radiated Emissions test setup

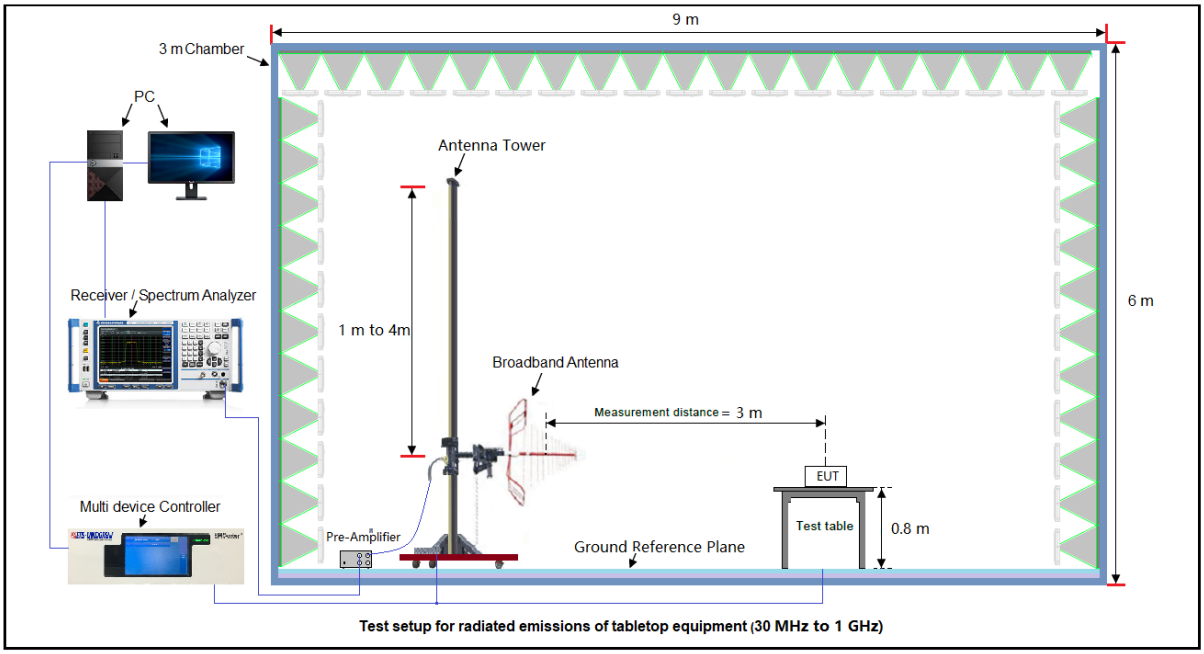


Figure 1. 30MHz to 1GHz

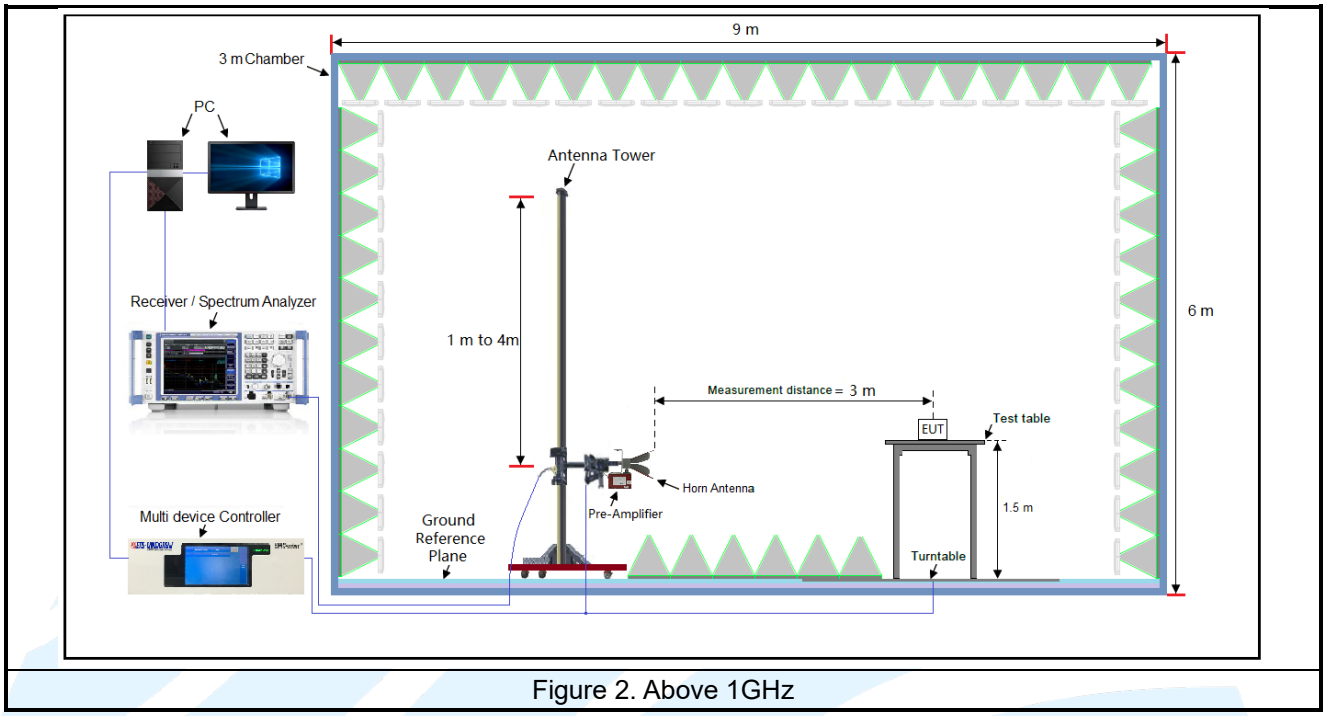
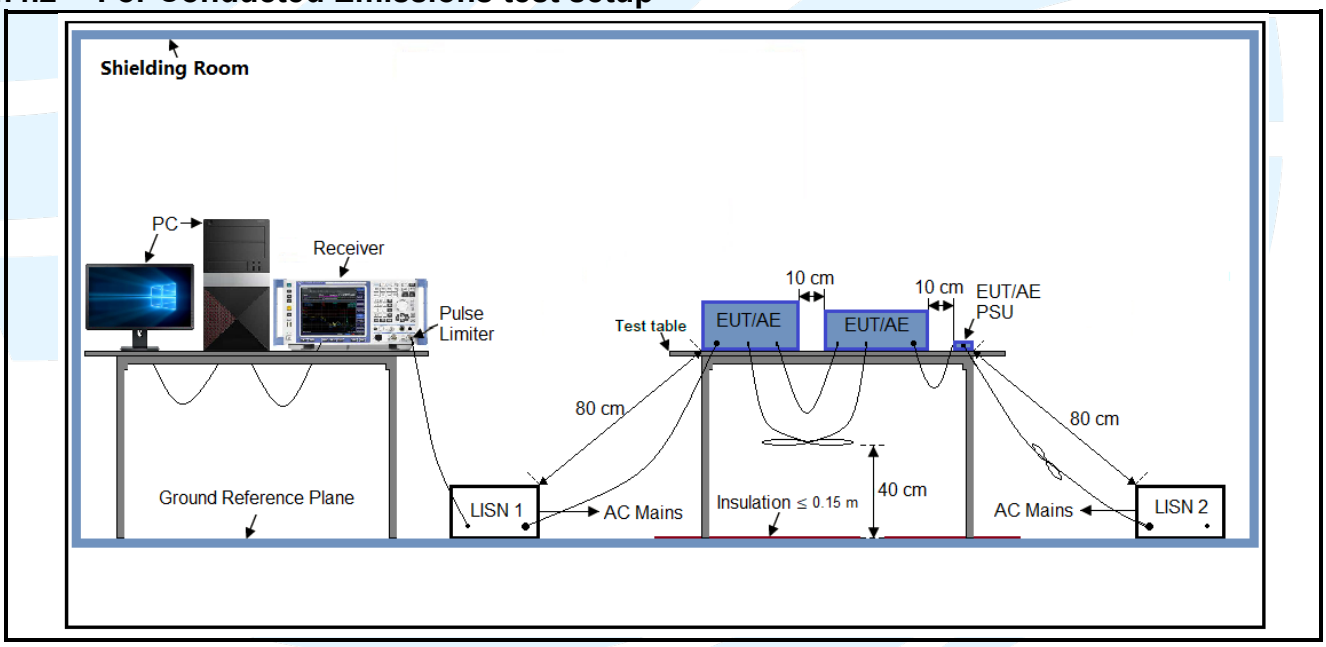
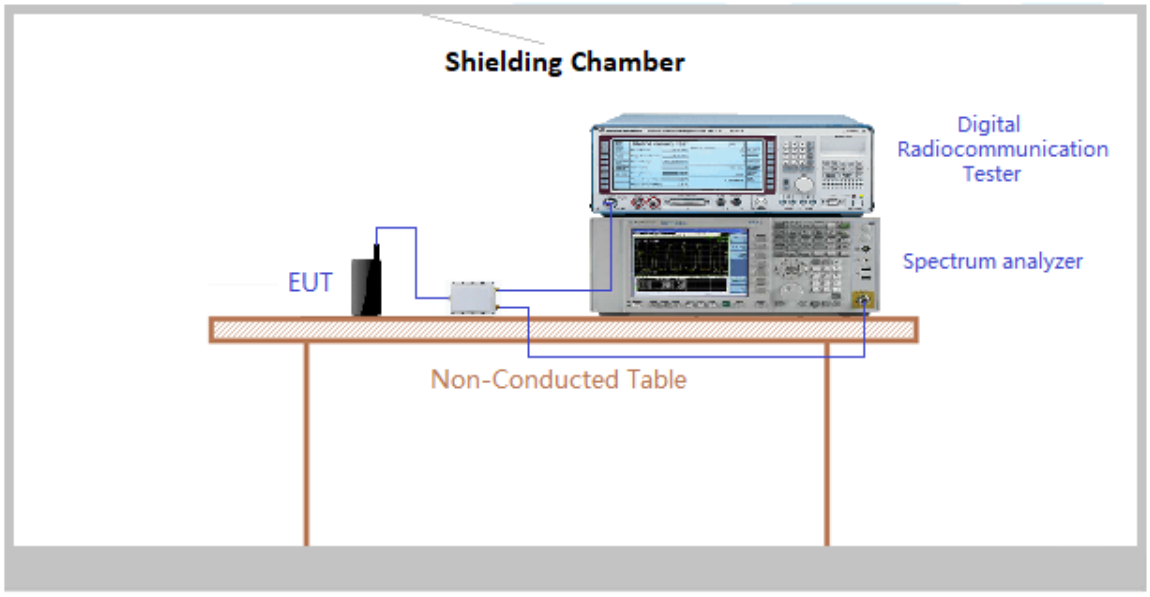


Figure 2. Above 1GHz

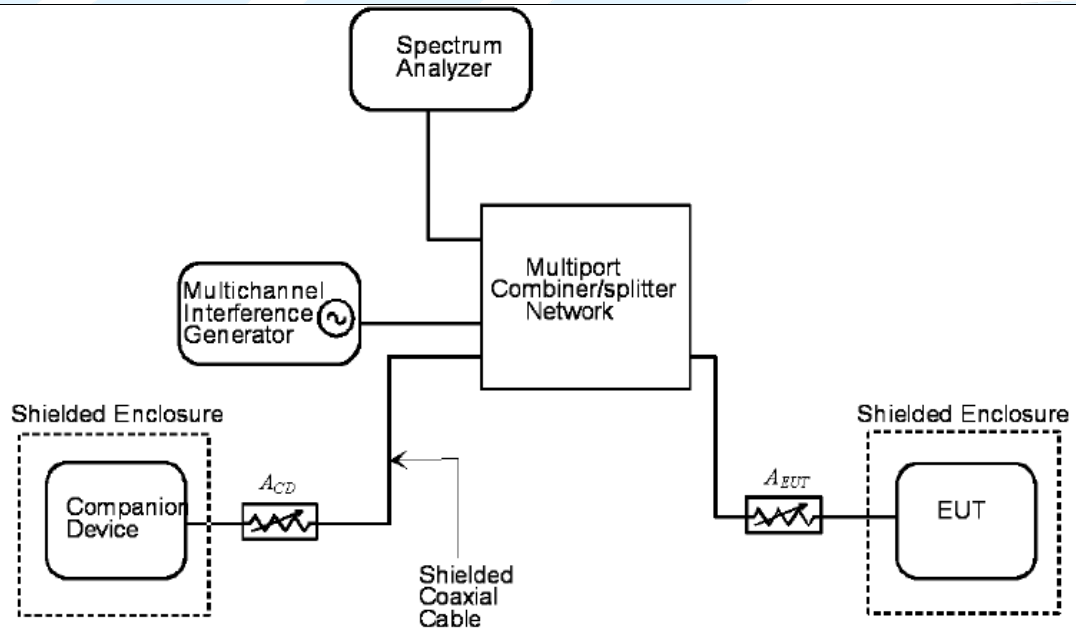
4.4.2 For Conducted Emissions test setup



4.4.3 For Conducted RF test setup



Conducted Emission Test Configuration



Conducted Monitoring and Operation Test Configuration

4.5 SYSTEM TEST CONFIGURATION

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, radiated emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario. It was powered by a 3.7V battery or 120Vac at adapter. Only the worst case data were recorded in this test report.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. Therefore, all final radiated testing was performed with the EUT in (see table below) orientation.

Frequency	Mode	Antenna Port	Worst-case axis positioning
Above 1 GHz	1TX	Chain 0	Y axis

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

5. RADIO TECHNICAL REQUIREMENTS SPECIFICATION

5.1 REFERENCE DOCUMENTS FOR TESTING

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	RSS-213 Issue 3	2 GHz Licence-Exempt Personal Communications Services (LE-PCS) Devices
4	RSS-Gen Issue 5	General Requirements for Compliance of Radio Apparatus
5	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
6	ANSI C63.17-2013	American National Standard Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices

5.2 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. **RSS-Gen Issue 5, Section 6.8 requirement:** According to RSS-Gen Issue 5, Section 6.8, a transmitter can only be sold or operated with antennas with which it was certified. A transmitter may be certified with multiple antenna types. An antenna type comprises antennas having similar in-band and out-of-band radiation patterns.
EUT Antenna:
Antenna in the interior of the equipment and no consideration of replacement. The gain of the antenna is 0 dBi.

5.3 DIGITAL MODULATION TECHNIQUES

Requirements: FCC 47 CFR Part 15.319(b),
RSS-213 Issue 3, Section 5.1
All transmissions must use only digital modulation techniques. Both asynchronous and isochronous operations are permitted within the 1920– 1930 MHz band.

Reference Method: Declaration

Results: Pass

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 MC/TDMA/TDD (Multi carrier / Time Division Multiple Access / Time Division Duplex) using Digital GFSK (Gaussian Frequency Shift Keying) modulation.

For further details see operational description provided by manufacturer.

5.4 AUTOMATIC DISCONTINUATION OF TRANSMISSION

Requirements: FCC 47 CFR Part 15.319(f)
RSS-213 Issue 3, Section 5.2(4)
The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. The provisions in this section are not intended to preclude transmission of control and signaling information or use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

Reference Method: Manual evaluation

Results: Pass

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

5.5 EMISSION BANDWIDTH & OCCUPIED BANDWIDTH

Test Requirement: FCC 47 CFR Part 15.323(a)
RSS-Gen Issue 5, Section 5.5

Reference Method: ANSI C63.17-2013 Clause 6.1.3 or 7.4

Limit:

FCC 47 CFR Part 15.323(a)
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.

RSS-213 Issue 3, Section 5.5
The emission bandwidth shall not be less than 50 kHz nor more than 2.5 MHz

No requirement for 6 dB and 12 dB Bandwidth. These values are only used for testing Monitoring Bandwidth if the Simple Compliance test fails (ANSI C63.17, clause 7.4).

Test Procedure:

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.
5. If after measuring the emission bandwidth, it is found that the RBW used was not approximately 1% of the emission bandwidth, then adjust the RBW and repeat the procedure until the correct RBW is used. If the spectrum analyzer has fixed values of RBW, the one that is the nearest to 1% of the emission bandwidth is acceptable, provided it is no less than 0.5% of the emission bandwidth and no greater than 2% of the emission bandwidth.
6. Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

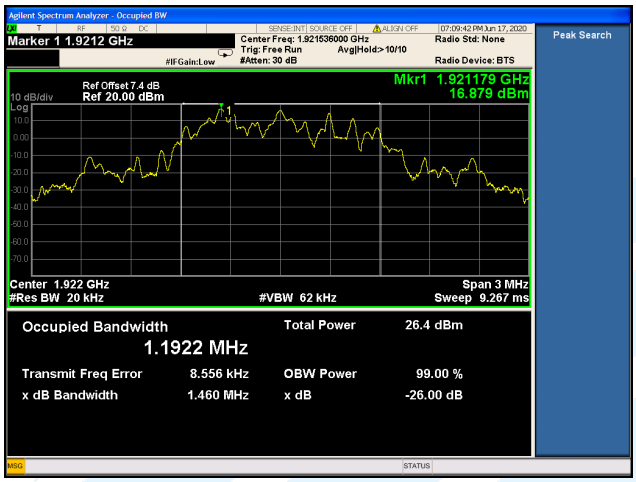
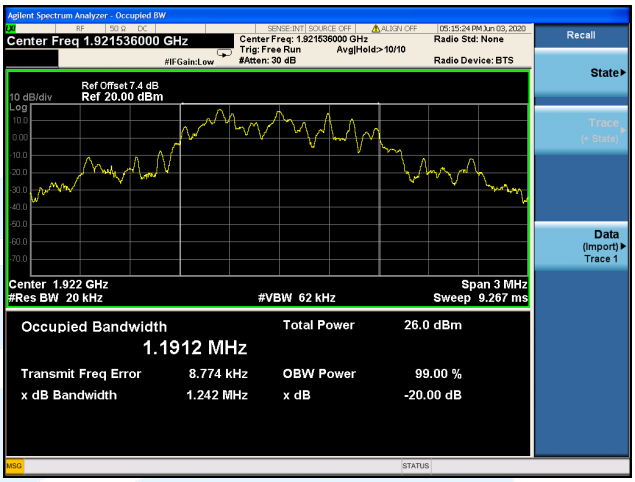
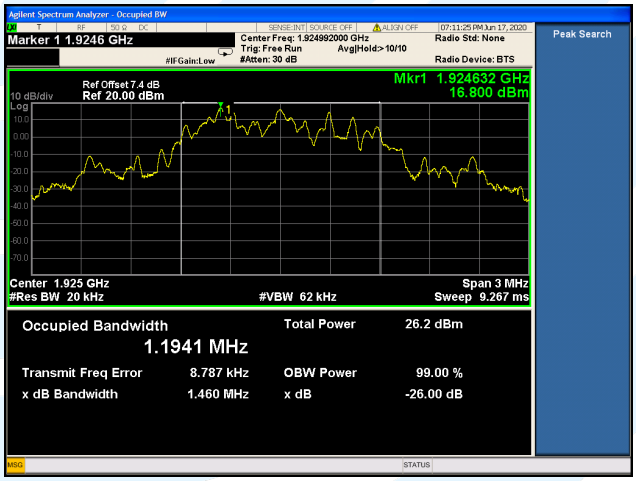
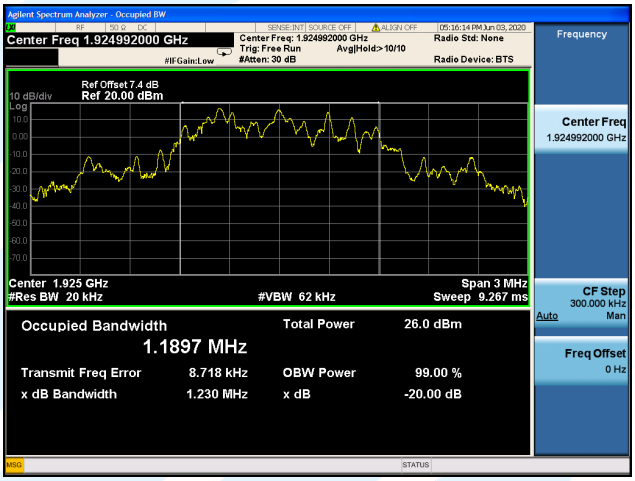
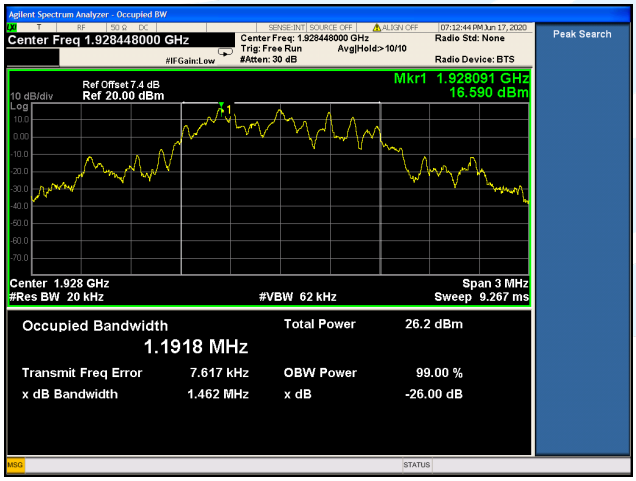
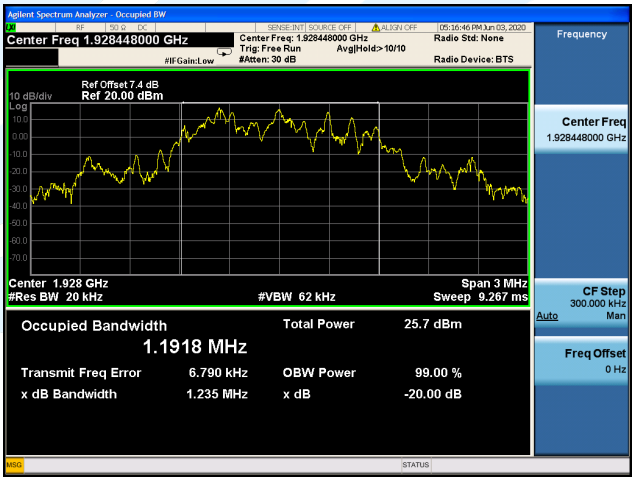
Test Setup: Refer to section 4.4.3 for details.

Equipment Used: Refer to section 3 for details

Test Results: Pass

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	Occupied Bandwidth (MHz)	Emission Bandwidth (MHz)	Emission Bandwidth Limit	Pass / Fail
4	1921.536	1.242	1.1912	1.460	> 500 kHz	Pass
2	1924.992	1.230	1.1897	1.460	> 500 kHz	Pass
0	1928.448	1.235	1.1918	1.462	> 500 kHz	Pass

The test plots as follows:

Emission Bandwidth	Occupied Bandwidth
Channel 4	
	
Channel 2	
	
Channel 0	
	

5.6 IN-BAND EMISSIONS

Test Requirement:	FCC 47 CFR Part 15.323(d) RSS-213 Issue 3, Section 5.8.2
Reference Method:	ANSI C63.17-2013 Clause 6.1.6.1
Limit:	For digital transmission systems, the minimum 6 dB bandwidth shall be 500 kHz.

FCC 47 CFR Part 15.323(d)

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.

RSS-213 Issue 3, Section 5.8.2

Emissions inside the band 1920-1930 MHz shall be attenuated below the transmit power permitted for that device, as follows:

- 30 dB between the frequencies 1B and 2B measured from the centre of the occupied bandwidth;
- 50 dB between the frequencies 2B and 3B measured from the centre of the occupied bandwidth;
- 60 dB between the frequencies 3B and band edges;

Where B is the occupied bandwidth in hertz.

Test Procedure:	ANSI C63.17-2013 Clause 6.1.6.1
Test Setup:	Refer to section 4.4.3 for details.
Equipment Used:	Refer to section 3 for details
Test Results:	Pass

The test plots as follows:

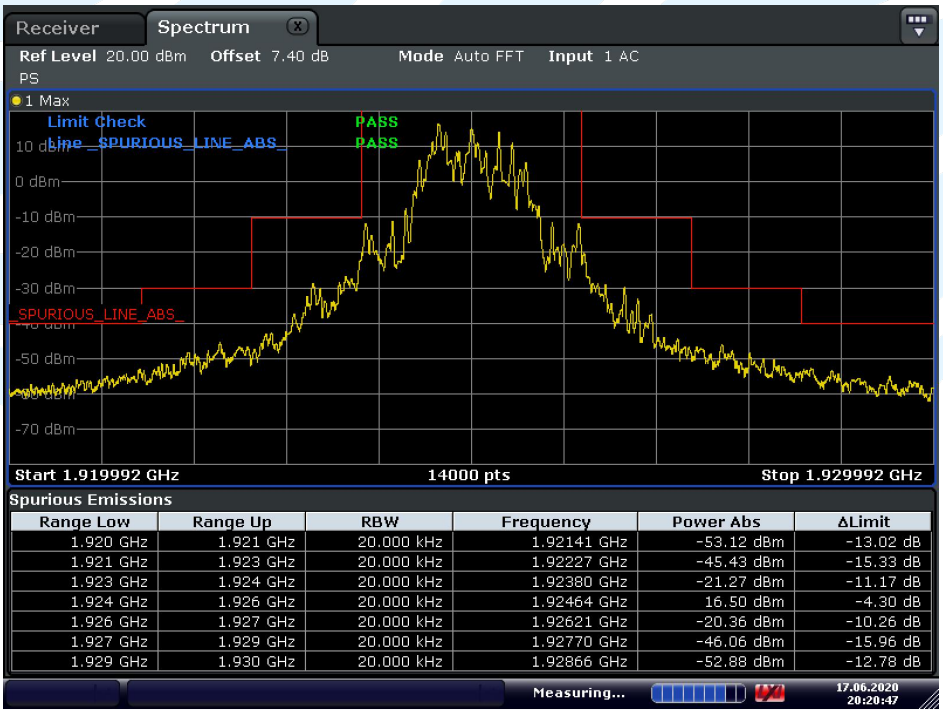
In-band emissions
Channel 4

Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.917 GHz	1.918 GHz	20.000 kHz	1.91788 GHz	-52.63 dBm	-12.53 dB
1.918 GHz	1.919 GHz	20.000 kHz	1.91912 GHz	-45.19 dBm	-15.09 dB
1.919 GHz	1.920 GHz	20.000 kHz	1.92034 GHz	-20.76 dBm	-10.66 dB
1.920 GHz	1.923 GHz	20.000 kHz	1.92118 GHz	16.50 dBm	-4.30 dB
1.923 GHz	1.924 GHz	20.000 kHz	1.92275 GHz	-19.42 dBm	-9.32 dB
1.924 GHz	1.925 GHz	20.000 kHz	1.92425 GHz	-44.31 dBm	-14.21 dB
1.925 GHz	1.927 GHz	20.000 kHz	1.92513 GHz	-53.71 dBm	-13.61 dB

Date: 17.JUN.2020 20:14:58

Channel 2

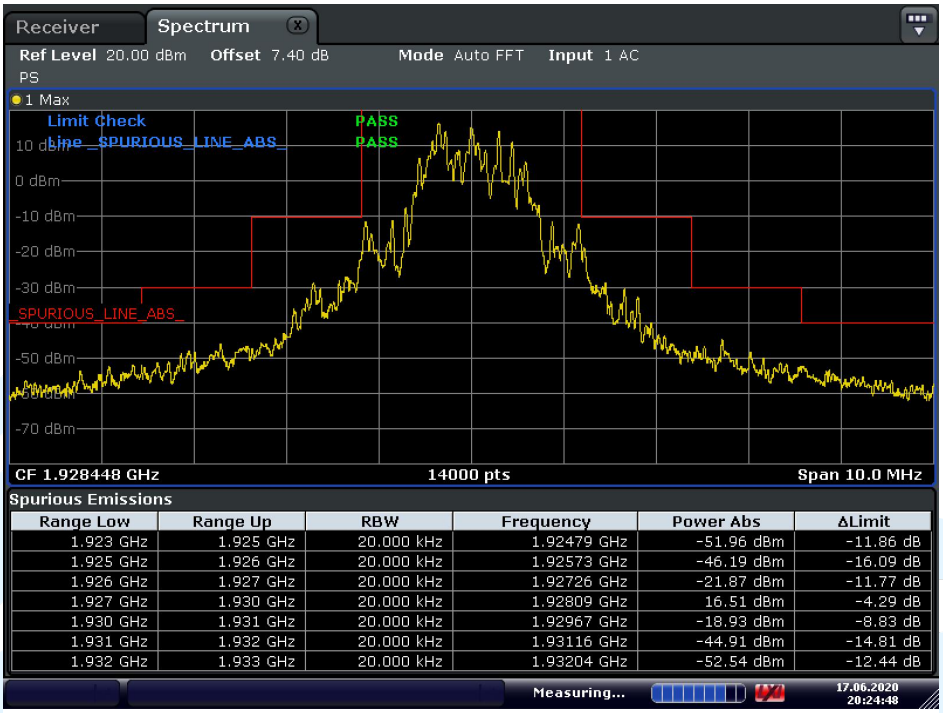


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.920 GHz	1.921 GHz	20.000 kHz	1.92141 GHz	-53.12 dBm	-13.02 dB
1.921 GHz	1.923 GHz	20.000 kHz	1.92227 GHz	-45.43 dBm	-15.33 dB
1.923 GHz	1.924 GHz	20.000 kHz	1.92380 GHz	-21.27 dBm	-11.17 dB
1.924 GHz	1.926 GHz	20.000 kHz	1.92464 GHz	16.50 dBm	-4.30 dB
1.926 GHz	1.927 GHz	20.000 kHz	1.92621 GHz	-20.36 dBm	-10.26 dB
1.927 GHz	1.929 GHz	20.000 kHz	1.92770 GHz	-46.06 dBm	-15.96 dB
1.929 GHz	1.930 GHz	20.000 kHz	1.92866 GHz	-52.88 dBm	-12.78 dB

Date: 17.JUN.2020 20:20:47

Channel 0


Receiver
Spectrum
Ref Level 20.00 dBm Offset 7.40 dB Mode Auto FFT Input 1 AC
PS
1 Max
Limit Check PASS
Line _SPURIOUS_LINE_ABS_ PASS
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
_SPURIOUS_LINE_ABS_
-50 dBm
-70 dBm
CF 1.928448 GHz
14000 pts
Span 10.0 MHz
Spurious Emissions
Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit
1.923 GHz | 1.925 GHz | 20.000 kHz | 1.92479 GHz | -51.96 dBm | -11.86 dB
1.925 GHz | 1.926 GHz | 20.000 kHz | 1.92573 GHz | -46.19 dBm | -16.09 dB
1.926 GHz | 1.927 GHz | 20.000 kHz | 1.92726 GHz | -21.87 dBm | -11.77 dB
1.927 GHz | 1.930 GHz | 20.000 kHz | 1.92809 GHz | 16.51 dBm | -4.29 dB
1.930 GHz | 1.931 GHz | 20.000 kHz | 1.92967 GHz | -18.93 dBm | -8.83 dB
1.931 GHz | 1.932 GHz | 20.000 kHz | 1.93116 GHz | -44.91 dBm | -14.81 dB
1.932 GHz | 1.933 GHz | 20.000 kHz | 1.93204 GHz | -52.54 dBm | -12.44 dB
Measuring...
17.06.2020
20:24:48
Date: 17.JUN.2020 20:24:47