



FCC LISTED, REGISTRATION
NUMBER: 2764.01

ISED LISTED REGISTRATION
NUMBER: 23595-1

Test report No:
4892ERM.003A1

Test report

**USA FCC Part 15.249, 15.209
CANADA RSS-210, RSS-Gen**

**Radio Frequency Devices. Operation within the bands 902 - 928 MHz,
2400 -2483.5 MHz, and 5725 - 5850 MHz.**

(*) Identification of item tested	Wireless Alarm System with Integrated Home Automation
(*) Trademark	Qolsys
(*) Model and /or type reference tested	IQPanel5
(*) Derived model not tested	IQ5 Hub, IQ5 NS
Other identification of the product	FCC ID: 2AAJXQSIQP5 IC ID: 11205A-QSIQP5
(*) Features	LTE, BLE, Wi-Fi, Z-Wave, PowerG
Manufacturer	Qolsys Inc. 1919 S Bascom Ave., Suite 600, Campbell, CA 95008, USA
Test method requested, standard	USA FCC Part 15.249 (01-03-17 Edition): Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, 5725 - 5875 MHz, and 24.0 – 24.25 GHz. USA FCC Part 15.209 (06-28-21 Edition): Radiated emission limits; general requirements. CANADA RSS-210 Issue 11 (June 2024). CANADA RSS-Gen Issue 5 Amendment 2 (February 2021). ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager
Date of issue	03-24-2025
Report template No	FDT08_23 (*) "Data provided by the client"

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Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

DEKRA Certification Inc. guarantees the reliability of the data presented in this report, which is the result of the measurements, and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Certification at the time of performance of the test.

DEKRA Certification Inc. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the item under test established in this document.

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General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Certification Inc.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Certification internal document PODT000.

Test case	Frequency (MHz)	U (k=2)	Units
Occupied Bandwidth	908-916	1.87	%
Radiated Spurious Emission	30-180	4.27	dB
	180-1000	3.14	dB
	1000-18000	3.30	dB
	18000-40000	3.49	dB

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").
2. The sample consists of IQPanel5 is a wireless alarm system that monitors protected premises and sends alarms via LTE cellular network or Wi-Fi to a compatible alarm receiver at the monitoring station. It receives alarms from PowerG fire/intrusion initiating devices, it has integral siren and touch screen display. It also contains Z-Wave interface for controlling home automation devices. It is powered via an external power adapter rated 12Vdc/1A and it has an internal back-up battery for 24h standby.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples used for test have been selected by: The client.

Sample S/01 is composed of the following elements:

Id	Control Number	Description	Manufacturer/ Model	Serial N°	Date of Reception	Application
S/01	4892/06	Power G/Zwave/Wi-Fi (TX)(Conducted)	Qolsys/IQPanel5	QP4315B002411G06270	12/18/2024	Element Under Test

1. Sample S/01 was used for the following test(s):

All conducted tests indicated in appendix A.

Sample S/02 is composed of the following elements:

Id	Control Number	Description	Manufacturer/ Model	Serial N°	Date of Reception	Application
S/02	4892/08	Zwave (TX)(Radiated)	Qolsys/IQPanel5	QP4315B002411G06268	12/18/2024	Element Under Test
S/02	4892/03	PowerG Transmitter (door/window magnetic contact)	DSC/PG9945	--	12/18/2024	Accessory
S/02	4892/13	IQ Door Window-S Transmitter (door/window magnetic contact)	Qolsys/QS1133-840	--	12/18/2024	Accessory

2. Sample S/02 was used for the following test(s):

All Radiated tests indicated in appendix A.

Test sample description

Ports..... :	Port name and description		Cable				
			Specified length [m]	Attached during test	Shielded	Coupled to patient	
	Ethernet (when EThernet card is populated)			☒	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
Supplementary information to the ports..... :		No data provided					
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	☒	AC: 120Vac/60Hz/0.68A	☐	☐	☐	☐	☐
	☐	AC:	☐	☐	☐	☐	☐
	☒	DC: 12V/1A external adapter (part of the EUT)					
☒	DC: rechargeable 3.7V, 3000mAh lithium-ion battery						
Rated Power		12W					
Clock frequencies.....		24MHz, 39MHz, 38.4 MHz					
Other parameters		No Data Provided					
Software version		5.0.1					
Hardware version		QB9501 Rev. OA					
Dimensions in cm (W x H x D)		15.5 x 19.1 x 2.6					
Mounting position	☒	Table top equipment					
	☒	Wall/Ceiling mounted equipment					
	☐	Floor standing equipment					
	☐	Hand-held equipment					
	☐	Other:					

Modules/parts.....:	Module/parts of test item	Type	Manufacturer
	IQPanel5 Control Panel	Panel	Qolsys
	AC/DC Power adapter (use for conducted EMC)	Power Supply	Sure-Power
	Ethernet card (optional) (use for EMC testing)	Card	Qolsys
	SRF319 security receiver card (optional)(use for EMC	Card	Qolsys
Accessories (not part of the test item)	Description	Type	Manufacturer
	No data provided		
Documents as provided by the applicant	Description	File name	Issue date
	Block Diagram and Operational description	FDT30_18 Declaration Equipment Data signed	12/10/2024
	Schematic/Parts Lists/PCB		
	Internal/External photos		
	Manual/Labels		
Copy of marking plate:			

Identification of the client

Qolsys Inc.,
1919 S Bascom Ave., Suite 600, Campbell, CA 95008, USA

Testing period and place

Test Location	DEKRA Certification Inc.
Date (Start)	12-21-2024
Date (Finish)	01-06-2025

Document history

Report number	Date	Description
4892ERM.003	02-21-2025	First release.
4892ERM.003A1	03-24-2025	Second release. The edition of the rules applied is updated in the cover page. This modified report cancels and replaces the report 4892ERM.003.

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Remarks and comments

The tests have been performed by the technical personnel: Prudhvi Kothapalli, Yuqi Qang, Yuri Barone and Koji Nishimoto.

Testing verdicts

Not applicable :	N/A
Pass :	P
Fail :	F
Not measured :	N/M

Summary

FCC PART 15.249 PARAGRAPH / RSS-249 (Z-wave)					
Report Section	FCC Spec Clause	RSS Spec Clause	Test Description	Verdict	Remark
A.1	§ 2.1049	RSS-Gen 6.7	99% Occupied Bandwidth	P	N/A
A.2	§ 15.249 (a) 6 dB Bandwidth	RSS-210 B.10 (a)	Field Strength of fundamental	P	N/A
A.3	§ 15.249 (d)	RSS-210 B.10 (b)	Emission limitations radiated (Transmitter)	P	N/A
<u>Supplementary information and remarks:</u> This test report covers only the testing of the Z-wave radio interface embedded in the IQPanel5.					

List of equipment used during the test

Conducted Measurements

Control Number	Description	Manufacturer	Model	Last Calibration	Next Calibration
1391	FSW50 Signal analyzer	Rohde & Schwarz	FSW50	2024/10	2026/10
1107	Ethernet SNMP Thermometer	HW Group	HWg-STE Plain	2024/10	2025/10

Radiated Measurements

Control Number	Description	Manufacturer	Model	Last Calibration	Next Calibration
982	Low Noise Preamplifier (18-40GHz)	Bonn Elektronik	BLMA1840-1M	2023/03	2025/03
1014	FSV40 Signal Analyzer	Rohde & Schwarz	FSV40	2024/10	2026/10
1055	Double-Ridged Waveguide Horn Antennas	ETS Lindgren	3116C	2023/02	2026/02
1057	Double-ridge Waveguide Horn antenna	ETS Lindgren	3115	2023/07	2026/07
1064	Biconical log Antenna	ETS Lindgren	3142E	2022/12	2025/12
1108	Ethernet SNMP Thermometer- CR Room	HW Group	HWg-STE Plain	2024/10	2025/10
1111	Ethernet SNMP Thermometer- SAC	HW Group	HWg-STE Plain	2024/10	2025/10
1179	Semi-Anechoic Chamber	Frankonia	SAC 3plus 'L'	N/A	N/A
1217	Frankonia Transparent Test Table 1	Frankonia	FFT-Square	N/A	N/A
1314	Wireless measurement software EMC 32	Rohde & Schwarz	-	N/A	N/A
1374	EMI TEST RECEIVER	Rohde & Schwarz	ESR 7	2024/06	2026/06
1461	Low Noise Preamplifier (1-18GHz)	Bonn Elektronik	BLMA0118-4A	2024/06	2026/06

Appendix A: Test results (Z-wave)

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PRODUCT INFORMATION

The following information is provided by the client

Information	Description
Modulation	FHSS
Operation mode	
- Operating Frequency Range	908 - 920 MHz
- RF Output Power	14 dBm(Normal)
Extreme operating conditions	
- Temperature range	25 °C
Antenna type	Chip Antenna
Antenna gain	908.4 MHz: -2.16 dBi 916.0 MHz: -0.66 dBi
Nominal Voltage	
- Supply Voltage	12 V
- Type of power source	DC Voltage
Equipment type	Z-wave
Geo-location capability	No

DESCRIPTION OF TEST CONDITIONS

TEST CONDITIONS	DESCRIPTION
TC#01	<u>Power supply (V):</u> $V_{\text{nominal}} = 12 \text{ Vdc}$ <u>Test Frequencies for Conducted/ Radiated tests: Z-Wave (Normal)</u> Lowest channel: 908.4 MHz Highest channel: 916.0 MHz

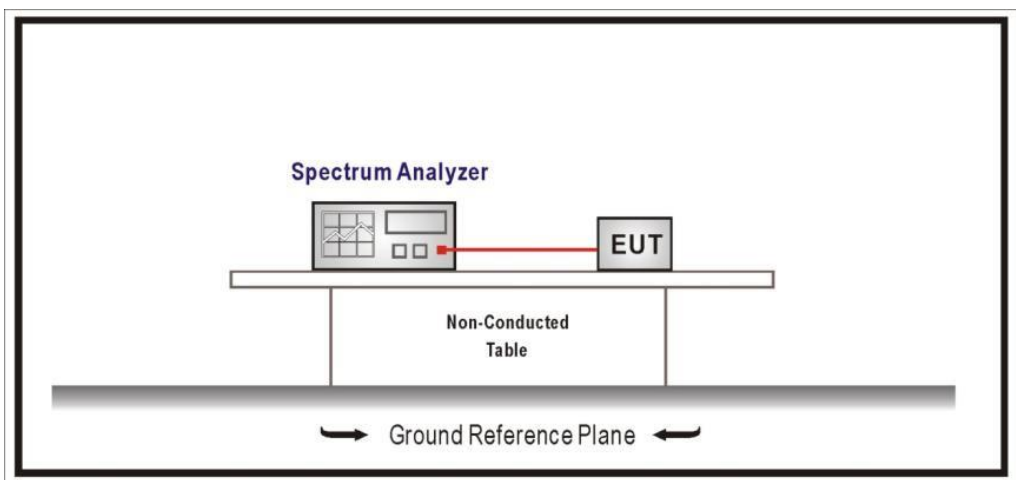
TEST A.1: 99% OCCUPIED BANDWIDTH & 6 DB BANDWIDTH

LIMITS:	Product standard:	§ 2.1049 and RSS-Gen
	Test standard:	§ 2.1049 and RSS-Gen 6.7

LIMITS

The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs

TEST SETUP



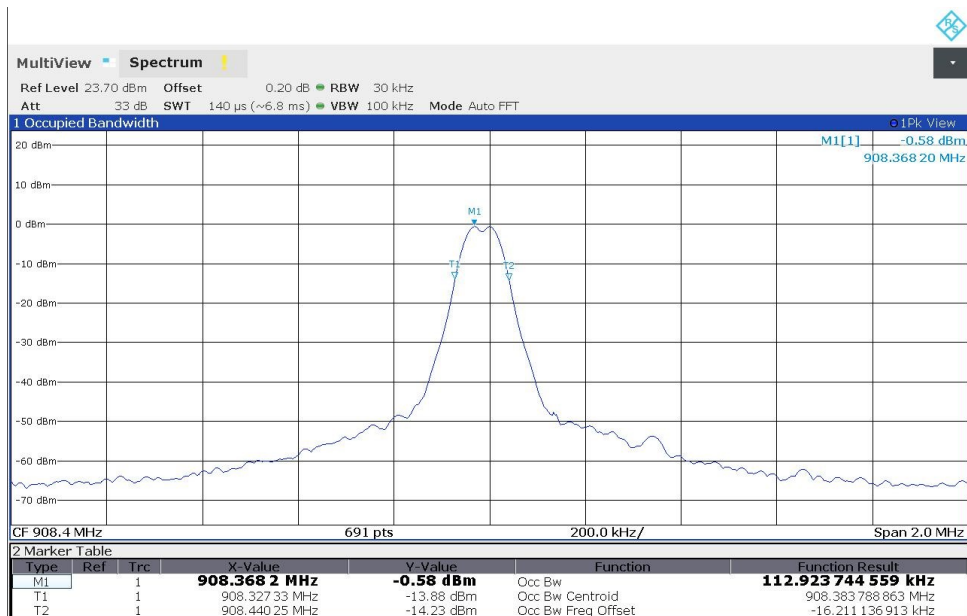
TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#01
TEST RESULTS:	PASS

Test case	Lowest frequency 908.4 MHz	Highest frequency 916 MHz
99% bandwidth (kHz)	112.92	157.11
6 dB Bandwidth (kHz)	86.8	55.0

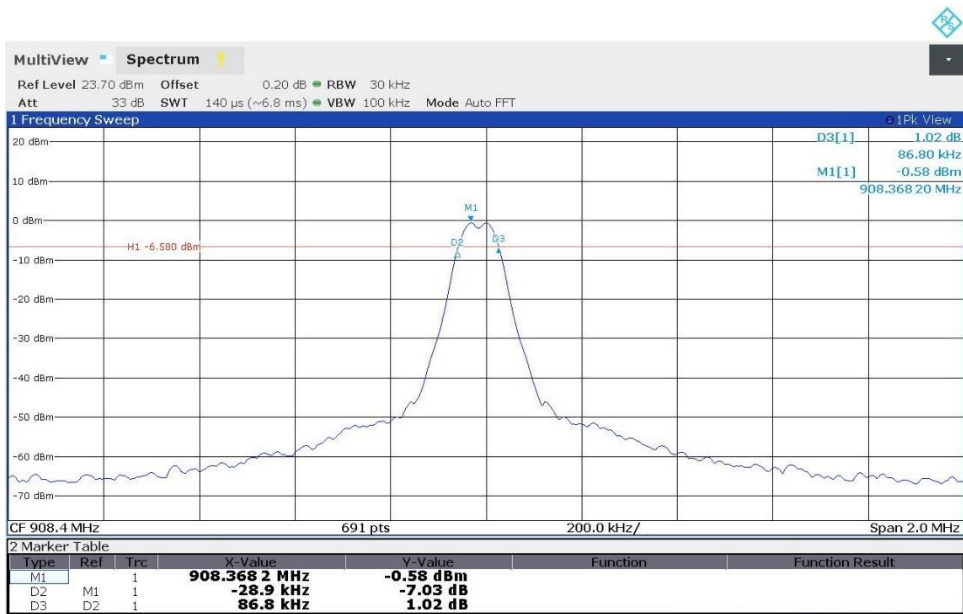
TEST RESULTS (Cont.):

Lowest Channel

99% OBW:



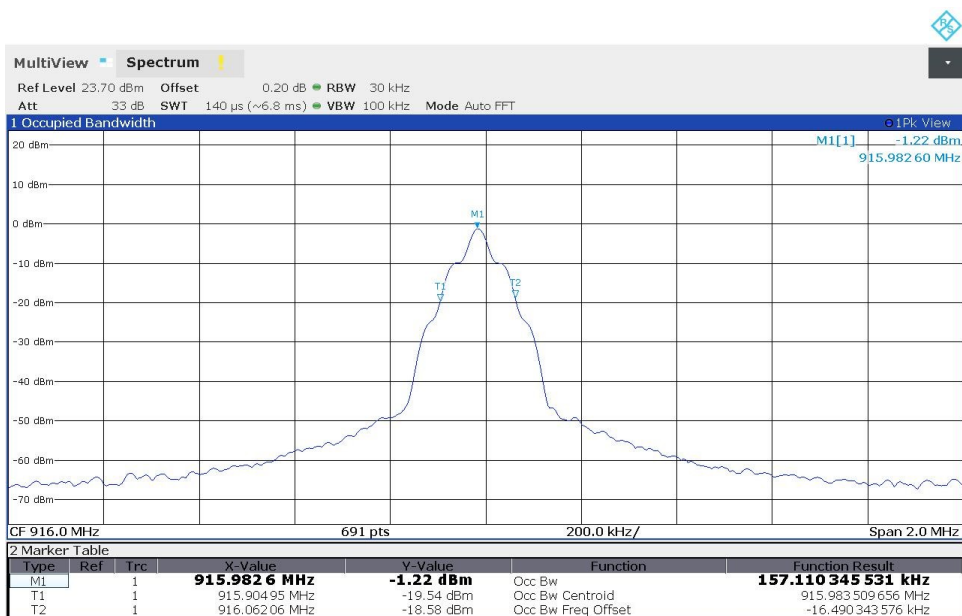
6 dB Bandwidth:



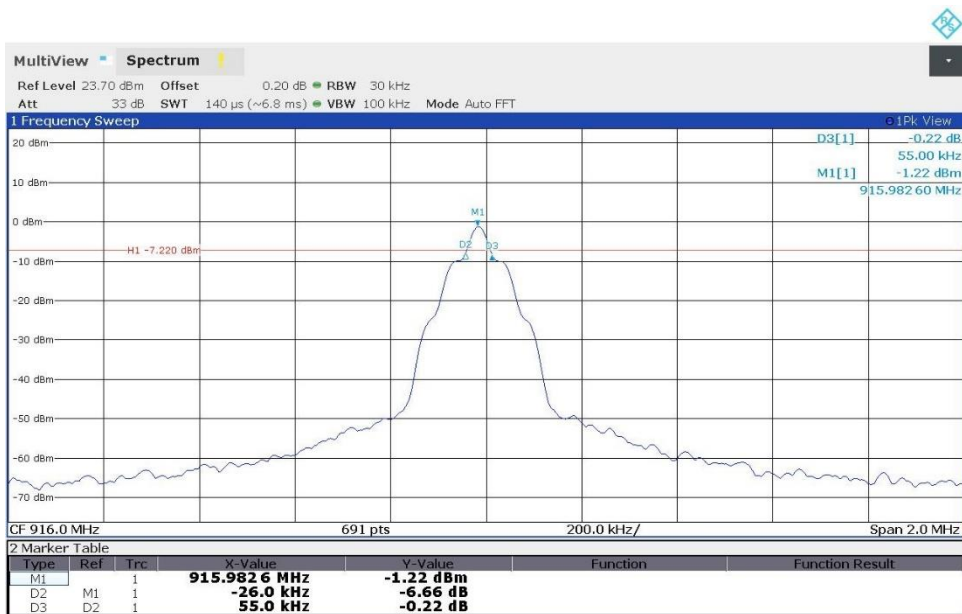
TEST RESULTS (Cont.):

Highest Channel

99% OBW:



6 dB Bandwidth:



TEST A.2: FUNDAMENTAL FIELD STRENGTH

LIMITS:	Product standard:	Part 15 Subpart C §15.249 and RSS-210
	Test standard:	Part 15 Subpart C §15.249(a) and RSS-210 B.10(a)

LIMITS

The field strength of emissions in this band shall not exceed 2500 millivolts/meter. The field strength of emissions from intentional radiators shall comply with the following

Frequency Range (MHz)	Field strength of fundamental (mV/m)	Field strength (dBμV/m)	Measurement distance (m)
902 - 928	50	93.98	3
2400 – 2483.5	50	93.98	3
5725 - 5875	50	93.98	3
24000-24250	250	107.96	3

For frequencies above 1000 MHz, the above field strength limits are based on average limits. 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.

RSS-210. The field strength of fundamental and harmonic emissions, measured at 3 m, shall not exceed 50 mV/m and 0.5 mV/m respectively. Attenuation below the general field strength limits specified in RSS-Gen is not required

TEST SETUP

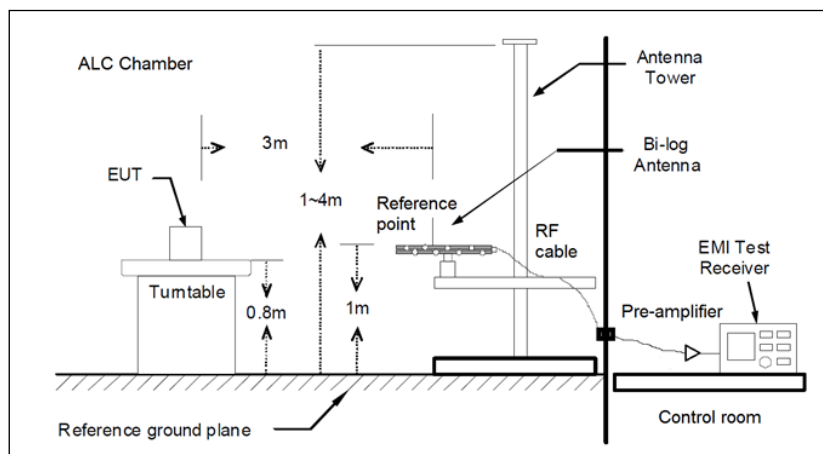
All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at 3 m for the frequency range 30-1000 MHz (Bilog antenna).

The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor and cable loss.

Radiated measurements setup $f < 1$ GHz



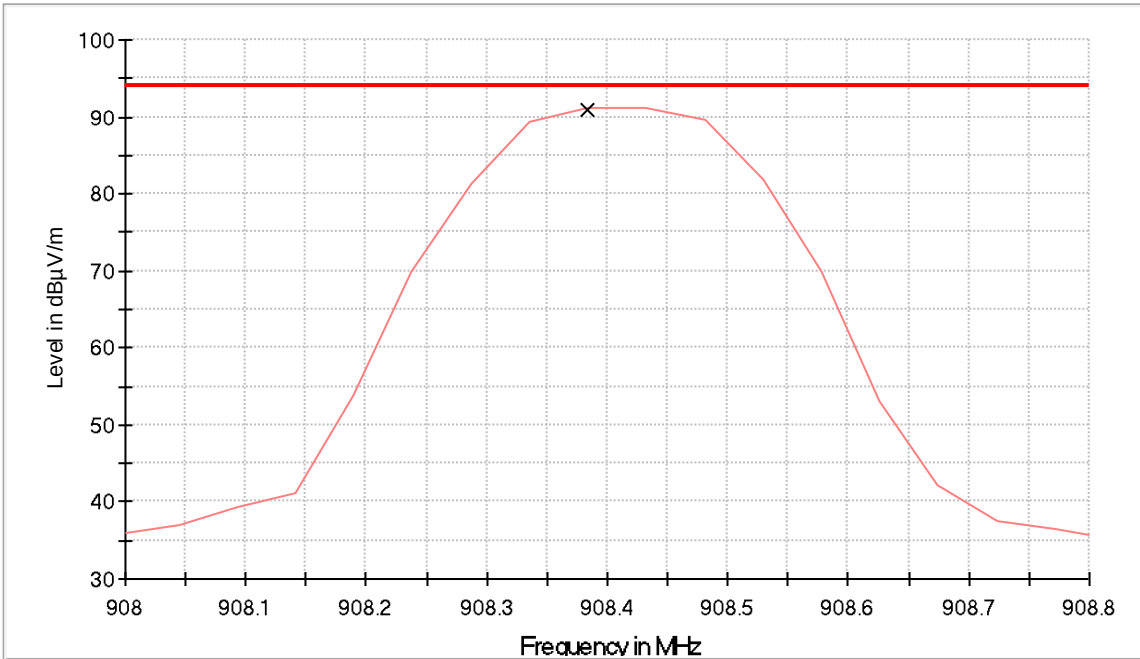
TESTED SAMPLES:	S/02
TESTED CONDITIONS MODES:	TC#01
TEST RESULTS:	PASS

Test case	Lowest frequency 908.4 MHz	Highest frequency 916 MHz
Field strength peak (dBµV/m)	90.8	92.9

TEST RESULTS (Cont.):	
-----------------------	--

Lowest Channel

RF_FCC_15.249_E Field_30MHz_1GHz_Fundamental_902-928MHz

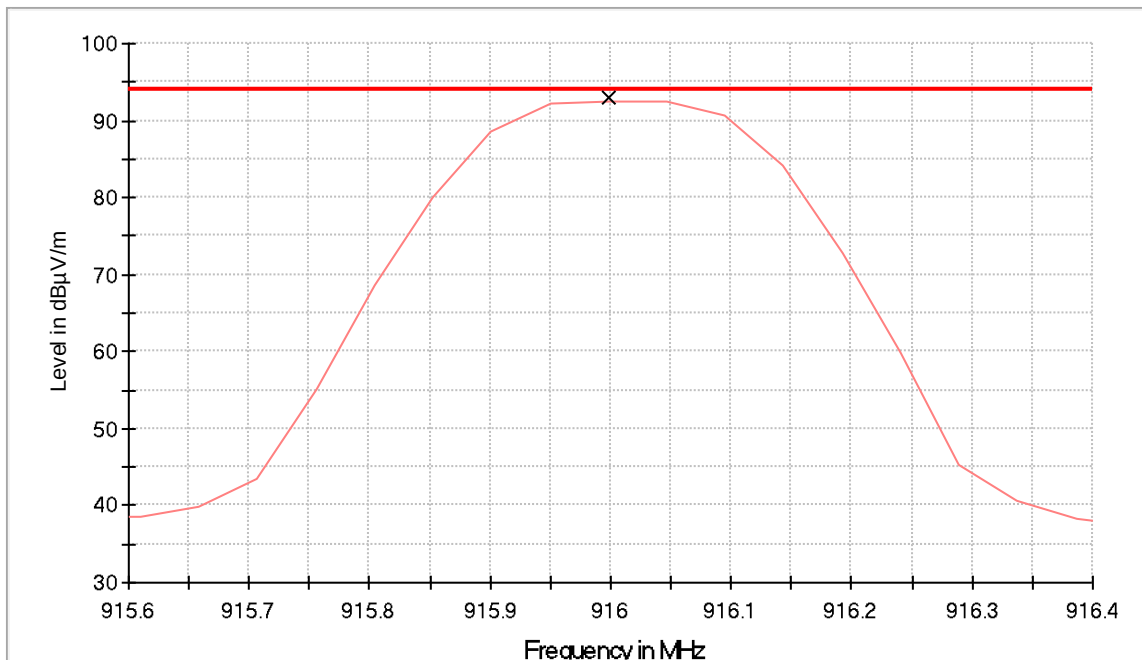


- PK+_MAXH
- TX limits to Spurious Emission FCC15.249 (30MHz to 1GHz) 902-928MHz+15.209 QPK Limit
- x QuasiPeak-QPK (Single)

TEST RESULTS (Cont.):

Highest Channel

RF_FCC_15.249_E Field_30MHz_1GHz_Fundamental_902-928MHz



- PK+_MAXH
- TX limits to Spurious Emission FCC15.249 (30MHz to 1GHz) 902-928MHz+15.209 QPK Limit
- X QuasiPeak-QPK (Single)

TEST A.3: EMISSION LIMITATIONS RADIATED (TRANSMITTER)

LIMITS:	Product standard:	Part 15 Subpart C §15.249 and RSS-210
	Test standard:	Part 15 Subpart C §15.249(b), RSS-210 and RSS-Gen 8.9 and 8.10

LIMITS

The field strength of harmonics from intentional radiators shall comply with section 15.249 mentioned as the following:

Frequency Range (MHz)	Field strength of fundamental (mV/m)	Field strength (dBµV/m)	Measurement distance (m)
902 - 928	50	93.98	3
2400 – 2483.5	50	93.98	3
5725 - 5875	50	93.98	3
24000-24250	250	107.96	3

Radiated emissions outside of the specific frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of fundamental or to the general radiated emission limits specified in section 15.209:

Frequency Range (MHz)	Field strength (µV/m)	Field strength (dBµV/m)	Measurement distance (m)
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	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 25000	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

TEST SETUP

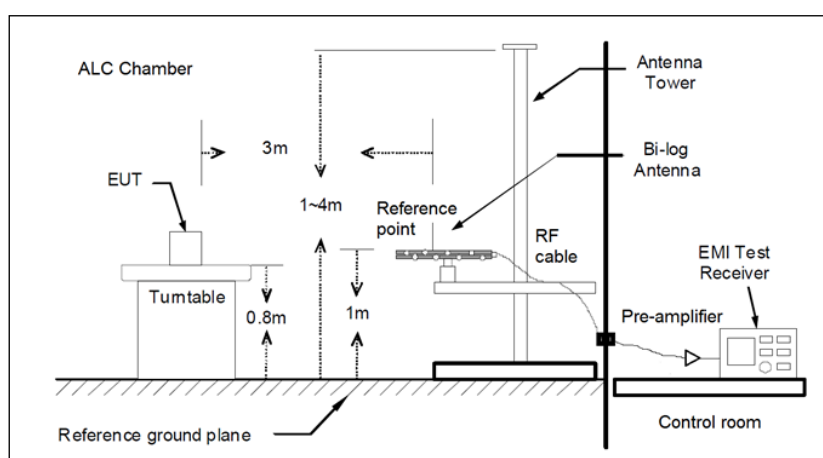
All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 3 m for the frequency range 30-1000 MHz (Bilog antenna) and 1 GHz-18 GHz (Double ridge horn antenna).

The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

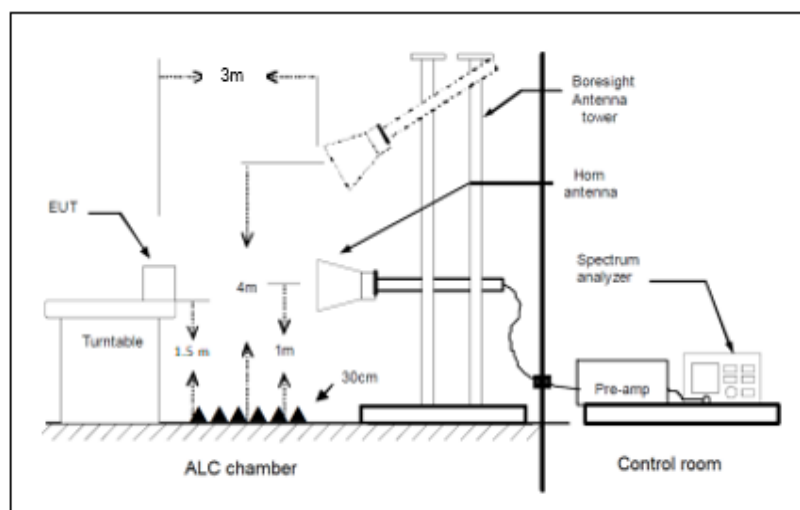
Measurements were made in both horizontal and vertical planes of polarization.

The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

Radiated measurements Setup $f < 1$ GHz



Radiated measurements setup $f > 1$ GHz



TESTED SAMPLES:

S/02

TESTED CONDITIONS MODES:

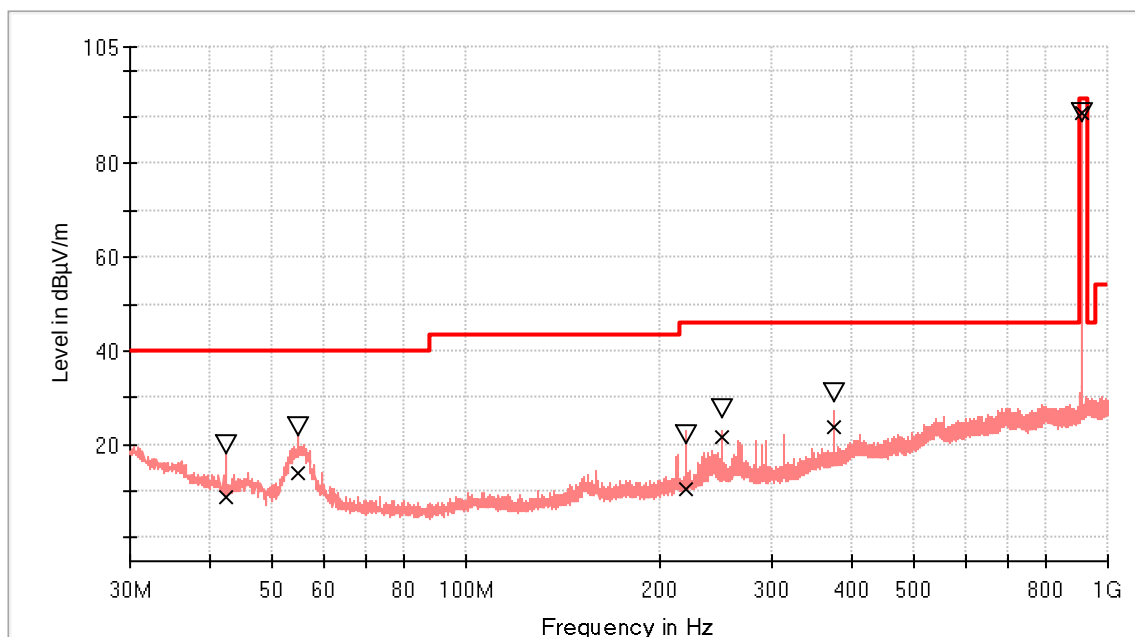
TC#01

TEST RESULTS:

PASS

Frequency range 30 MHz – 1000 MHz (Lowest Channel)

RF_FCC_15.249_E Field_30MHz_1GHz_Fundamental_902-928MHz



— PK+_MAXH
— TX limits to Spurious Emission FCC15.249 (30MHz to 1GHz) 902-928MHz+15.209 Q PK Limit
▽ MaxPeak-PK+ (Single)
× QuasiPeak-QPK (Single)

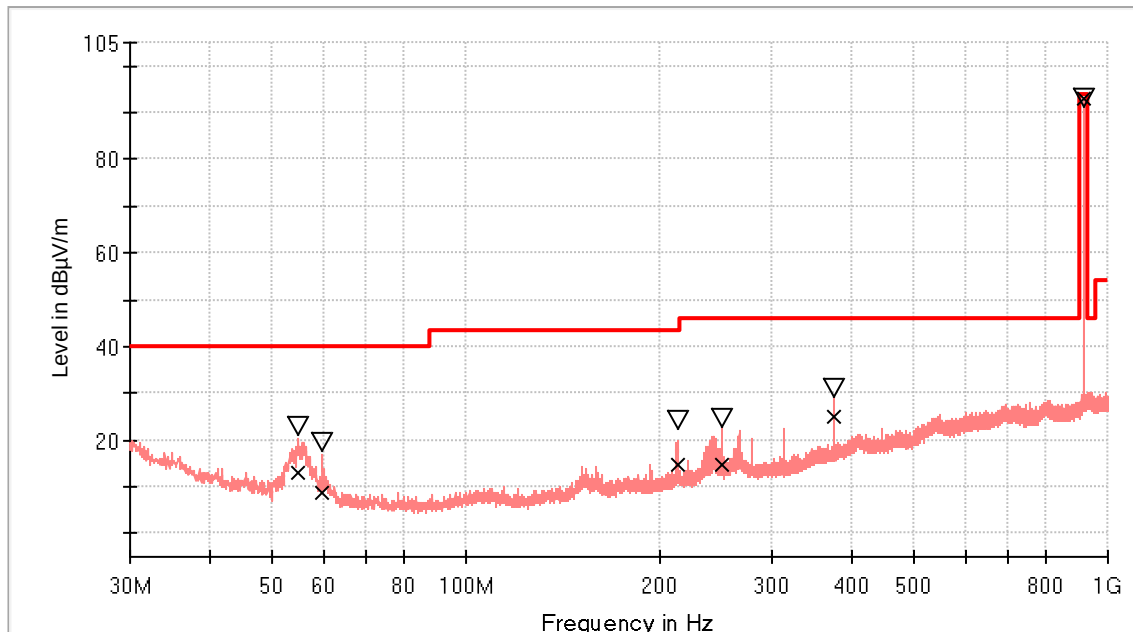
Maximizations

Frequency (MHz)	MaxPeak (dBμV/m)	QuasiPeak (dBμV/m)	Pol	Margin - QPK (dB)	Limit - QPK (dBμV/m)	Comment
42.416000	20.0	8.5	V	31.5	40.0	
54.783500	23.9	13.9	V	26.1	40.0	
220.168500	22.0	10.3	V	35.7	46.0	
249.996000	27.7	21.4	V	24.6	46.0	
375.029000	31.0	23.9	H	22.1	46.0	
908.383500	91.0	90.8	V	3.1	94.0	Fundamental

TEST RESULTS (Cont.):

30-1000 MHz (Highest Channel)

RF_FCC_15.249_E Field_30MHz_1GHz_Fundamental_902-928MHz



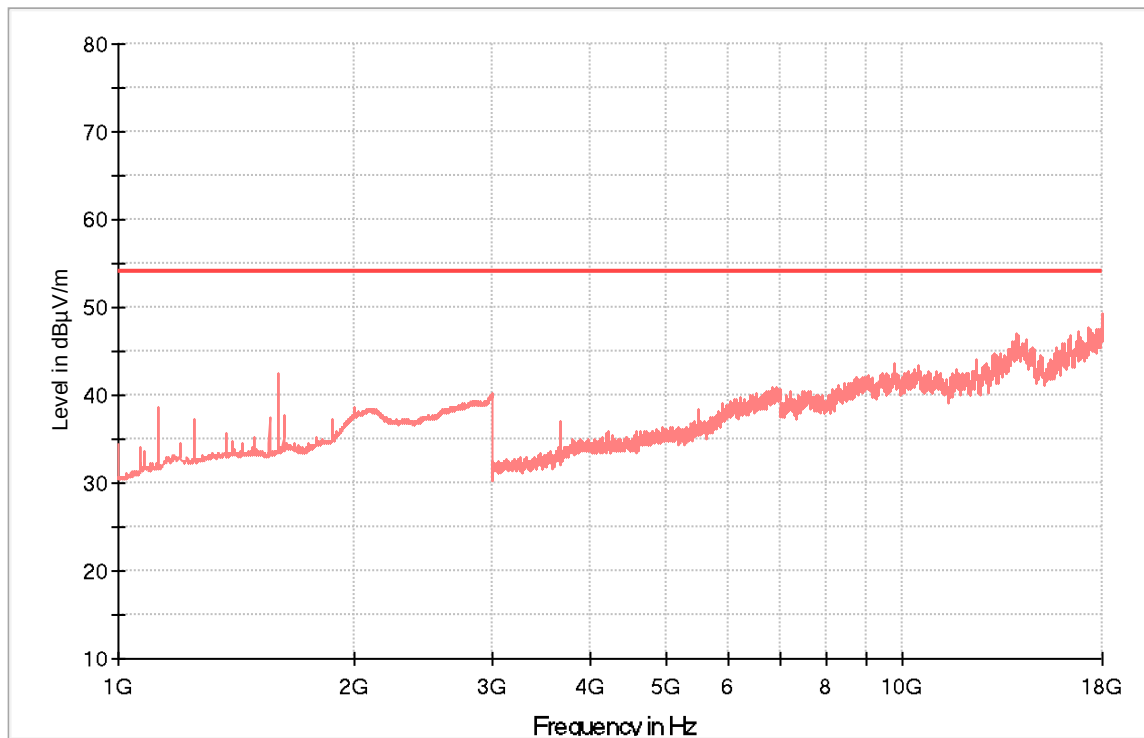
- PK+_MAXH
- TX limits to Spurious Emission FCC15.249 (30MHz to 1GHz) 902-928MHz+15.209 Q PK Limit
- v MaxPeak-PK+ (Single)
- x QuasiPeak-QPK (Single)

Maximizations

Frequency (MHz)	MaxPeak (dBμV/m)	QuasiPeak (dBμV/m)	Pol	Margin - QPK (dB)	Limit - QPK (dBμV/m)	Comment
54.880500	22.9	13.1	V	26.9	40.0	
59.827500	19.5	8.9	V	31.1	40.0	
213.669500	24.2	14.6	H	28.9	43.5	
249.947500	24.4	14.9	V	31.1	46.0	
374.980500	31.1	24.8	V	21.2	46.0	
915.998000	93.1	92.9	V	1.1	94.0	Fundamental

TEST RESULTS (Cont.):

1-18 GHz (Lowest Channel)



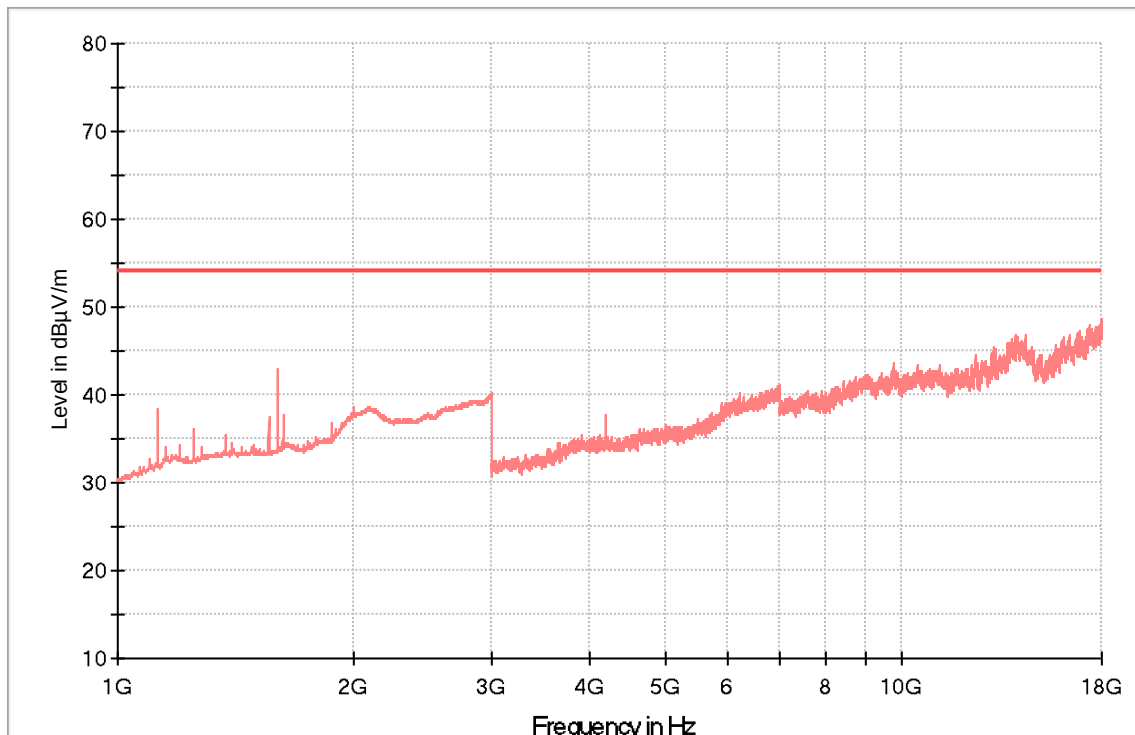
— AVG_MAXH — TXlimits to Spurious Emission FCC15.249 (Above 1GHz) 902-928MHz_Average Lim

Maximizations

Frequency (MHz)	AVG_MAXH (dBμV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBμV/m)
1125.000000	38.7	V	15.3	54.0
1600.000000	42.4	V	11.5	54.0
14008.500000	47.2	V	6.8	54.0

TEST RESULTS (Cont.):

1-18 GHz (Highest Channel)



— AVG_MAXH — TXlimits to Spurious Emission FCC15.249 (Above 1GHz) 902-928MHz_Average Lim

Maximizations

Frequency (MHz)	AVG_MAXH (dBμV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBμV/m)
1125.000000	38.4	H	15.6	54.0
1600.000000	43.0	H	11.0	54.0
14399.000000	46.8	H	7.2	54.0