



FCC LISTED, REGISTRATION
NUMBER: 2764.01

ISED LISTED REGISTRATION
NUMBER: 23595-1

Test report No:
3919ERM.002

Test report

**FCC Rules and Regulations CFR 47, Part 15, Subpart B & C (2018)
&
ICES-003 ISSUE 7 – October (2020)**

(*) Identification of item tested	Alarm Control Panel with integrated security and automation support
(*) Trademark	JCI/TYCO
(*) Model and /or type reference tested	IQ Pro P
Other identification of the product	FCC ID: F5322IQPRO IC ID: 160A-IQPRO Hw version: QB94Hx Rev. 0C / UA746 Rev. 01 Sw version: 4.2.0n
(*) Features	Wi-Fi 2.4GHz/5GHz, BLE, PowerG, Z-Wave, LTE
Manufacturer	Tyco Safety Products Canada Ltd. 3301 Langstaff Rd., Concord, ON L4K 4L2 Canada
Test method requested, standard	FCC Rules and Regulations CFR 47, Part 15, Subpart B & C (2018) ICES-003 ISSUE 7 – October (2020)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager
Date of issue	05-09-2023
Report template No	FDT08_23 (*) "Data provided by the client"

Index

Competences and guarantees3

General conditions3

Uncertainty3

Data provided by the client.....4

Usage of samples4

Test sample description5

Identification of the client.....5

Testing period and place.....6

Document history6

Environmental conditions7

Remarks and comments7

Testing verdicts.....8

Summary8

List of equipment used during the test.....9

Appendix A: Test results10

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 particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA Certification Inc.

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.

	Frequency (MHz)	U ($k=2$)	Units
Radiated emission	30 - 1000	5.94	dB
	1000-18000	5.89	dB
Conducted emission	0,009 - 30	3.54	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 The Alarm Control Panel supports wireless and wired initiating devices, communication with supervising station using cellular LTE and Ethernet communication paths. There are two configurations available: IQ Pro using metal enclosure and IQ Pro P using plastic enclosure, only differences are the use of antennas mounted outside the metal enclosure.

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 testing have been selected by **The Client**.

Sample S/01 is composed of the following elements, accessories and auxiliary equipment:

Id	Control Number	Description	Manufacturer/ Model	Serial N°	Date of Reception	Application
S/01	3919/13	Sample + Power supply Adapter	JCI - Tyco. / IQ Pro P	QPR0051052235B00015P00	01/31/2023	Element Under Test

1. Sample S/01 was used for the test(s): All test(S) indicated in appendix A.

Test sample description

Test Sample description (compulsory information for EMC and RF testing services).

Ports..... :	Port name and description		Cable				
			Specified length [m]	Attached during test	Shielded	Coupled to patient	
	18Vdc+/- (DC input)		6	☒	☐	☐	
	BELL +/- (Bell output)		6	☒	☐	☐	
	CORBUS (RED/BLK/YEL/GRN) (System communication bus)		6	☒	☐	☐	
	AUX1/AUX2 +/- (two auxiliary power outputs)		6	☒	☐	☐	
	PGM1-PGM4 (four programmable outputs)		6	☒	☐	☐	
Z1/COM- Z8/COM (Eight zone Inputs)		6	☒	☐	☐		
Supplementary information to the ports..... :	Use quad wires, 22AWG connected to all ports on UA746 Rev. 01						
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	☒	AC: 120Vac/60Hz	☐	☐	☐	☐	☐
	☐	AC:	☐	☐	☐	☐	☐
	☒	DC: 18Vdc/2.2A					
☐	DC:						
Rated Power	40W						
Clock frequencies	12MHz, 24MHz, 39MHz						
Other parameters..... :	No Data Provided						
Software version	4.2.0n						
Hardware version..... :	QB94Hx Rev. 0C/UA746 Rev. 01						
Dimensions in cm (W x H x D)	30.2 x 39.2 x 9.2						
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		
	QB94Hx Rev. 0C (motherboard)		PCB		Tyco		
	UA746 Rev. 01 (hardwired zone inputs)		PCB		Tyco		
	UA757 Rev. 01/UA758 Rev. 02 (PSU/connections)		PCB		Tyco		
	UA762 Rev. 02 (external antennas board)		PCB		Tyco		
Accessories (not part of the test item)..... :	Description		Type		Manufacturer		
	Power Adapter HS40WPSNA		Power Adapter		SOY		
	The product shall be tested for conducted emissions in conjunction with this adapter						

Documents as provided by the applicant	Description	File name	Issue date
	Declaration Equipment Data	FDT30_18 Declaration Equipment Data signed	04/12/2023
	Block Diagram and Technical Description		
	Parts List		
	Schematics		
	FCC/ISED applications		

Copy of marking plate:



Identification of the client

Tyco Safety Products Canada Ltd.
3301 Langstaff Rd., Concord,
ON L4K 4L2,
Canada

Testing period and place

Test Location	DEKRA Certification Inc.
Date (start)	03-28-2023
Date (finish)	04-14-2023

Document history

Report number	Date	Description
3919ERM.002	05-09-2023	First release

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 semi-anechoic 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

1. The tests have been performed by the technical personnel: Koji Nishimoto, Qi Zhang, and Victor Albrecht.

Testing verdicts

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

Summary

Emission Test			
Report Section	Requirement – Test case	Verdict	Remark
A.1	Radiated Emission Electromagnetic Field – Unintentional Radiators (30 MHz – 1000 MHz)	P	N/A
A.1	Radiated Emission Electromagnetic Field – Unintentional Radiators (1 GHz – 18 GHz)	P	N/A
A.1	Radiated Emission Electromagnetic Field – Unintentional Radiators (18 GHz – 40 GHz)	P	N/A
A.2	Continuous Conducted Emission on Power Leads - Unintentional Radiators (150 kHz to 30 MHz)	P	Refer 1 & 2
A.3	Continuous Conducted Emission on Power Leads - Intentional Radiators (150 kHz to 30 MHz)	P	Refer 1 & 2

Supplementary information and remarks:

- 1) According with the requirements of FCC Rules and Regulations, title 47, Chapter I, Subchapter A, Part 15, Subpart B & C, §15.107 & §15.207 Conducted limits, (d) & (c), Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation, and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provision for, the use of battery chargers which permit operating while charging, AC adaptors or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.
- 2) Exemptions from the scope of ICES-003, clause 1.5.1 ICES-003 does not apply to the following types of equipment (a) ITE or digital apparatus factory-installed in vehicles, boats or devices equipped with internal combustion engines, traction batteries or both (subject to ICES-002). ITE or digital apparatus not factory-installed in vehicles, boats or devices equipped with internal combustion engines, traction batteries or both do not qualify for this exemption.

List of equipment used during the test

Radiated Emission Equipment

Control Number	Description	Manufacturer	Model	Last Calibration	Next Calibration
982	Low Noise Preamplifier (18-40GHz)	Bonn Elektronik	BLMA1840-1M	2023/03	2025/03
1012	ESR26 EMI Test Receiver	Rohde & Schwarz	ESR26	2022/04	2024/02
1014	FSV40 Signal Analyzer	Rohde & Schwarz	FSV40	2021/05	2023/05
1055	Double-Ridged Waveguide Horn Antennas	ETS Lindgren	3116C	2023/02	2026/02
1057	Double-ridge Waveguide Horn antenna	ETS Lindgren	3115	2020/06	2023/06
1065	Biconical log Antenna	ETS Lindgren	3142E	2020/08	2023/08
1108	Ethernet SNMP Thermometer- CR Room	HW Group	HWg-STE Plain	2022/10	2024/10
1111	Ethernet SNMP Thermometer- SAC	HW Group	HWg-STE Plain	2022/10	2024/10
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
1461	Low Noise Preamplifier (1-18GHz)	Bonn Elektronik	BLMA0118-4A	2022/06	2024/06

Conducted Emission Equipment

Control Number	Description	Manufacturer	Model	Last Calibration	Next Calibration
1010	EMI Test Receiver	Rohde & Schwarz	ESR7	2020/10	2022/10
1073	Pulse Limiter	Narda	PMM PL01	2020/10	2023/10
1082	Line Impedance Stabilization Network	Narda	PMM L3-32	2021/10	2023/10
1110	Ethernet SNMP Thermometer- MR	HW Group	HWg-STE Plain	2020/08	2022/08
1314	Wireless measurement software EMC 32	Rohde & Schwarz	-	N/A	N/A

Appendix A: Test results

Appendix A Content

DESCRIPTION OF THE OPERATION MODES.....12

A.1. RADIATED EMISSION ELECTROMAGNETIC FIELD – UNINTENTIONAL RADIATORS .13

A.2. CONTINUOUS CONDUCTED EMISSION ON POWER LEADS - UNINTENTIONAL
RADIATORS.....18

A.3. CONTINUOUS CONDUCTED EMISSION ON POWER LEADS - INTENTIONAL
RADIATORS.....21

DESCRIPTION OF THE OPERATION MODES

The operation modes described in this paragraph represent functionalities of the sample under test.

The following operation modes of the samples were used during the test executions:

OPERATION MODE	DESCRIPTION
OM/01(*)	DUT ON. Power supply 18 Vdc by AC adapter. Wi-Fi 2.4GHz/5GHz, BLE, PowerG, Z-Wave, LTE in idle mode and SRF319 in RX mode.
OM/02	DUT ON. Power supply 18 Vdc by AC adapter. Z-Wave in TX mode.

* Worst configuration detected from SRF modules (SRF319, SRF345, or SRF433)

A.1. RADIATED EMISSION ELECTROMAGNETIC FIELD – UNINTENTIONAL RADIATORS

LIMITS:	Product standard:	FCC CFR 47, Part 15, Subpart B (2018), Secs. 15.109 & ICES-003 Issue 7 – October (2021)
	Test standard:	FCC CFR 47, Part 15, Subpart B (2018), Secs. 15.109 & ICES-003 Issue 7 – October (2020); ANSI C63.4 (2014)

Limits of interference Class B

The applied limit for radiated emissions, 3 m distance, in the frequency range 30 MHz to 40 GHz for class B equipment, according with the requirements of:

FCC Rules and Regulations 47 CFR Part 15, Subpart B, Secs. 15.109 (a).

[54 FR 17714, Apr. 25, 1989, as amended at 56 FR 373, Jan. 4, 1991; 58 FR 51249, Oct. 1, 1993; 66 FR 19098, Apr. 13, 2001; 67 FR 48993, July 29, 2002; 69 FR 2849, Jan. 21, 2004; 80 FR 33447, June 12, 2015]

Frequency range (MHz)	QP Limit for 3 m	
	($\mu\text{V/m}$)	(dB $\mu\text{V/m}$)
30 to 88	100	40
88 to 216	150	43.5
216 to 960	200	46
Above 960	500	54

Frequency range (MHz)	AVG Limit for 3 m		PK Limit for 3 m (1) (dB $\mu\text{V/m}$)
	($\mu\text{V/m}$)	(dB $\mu\text{V/m}$)	
Above 1000	500	54	74

(1) Frequencies above 1 GHz, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test, as per §15.35(b)

ICES-003 Issue 7, Secs 3.2.2, table 2 & 4 (October 2020).

Frequency range (MHz)	QP Limit for 3 m	
	($\mu\text{V/m}$)	(dB $\mu\text{V/m}$)
30 to 88	100	40
88 to 216	150	43.5
216 to 230	200	46
230 to 960	224	47
Above 960	500	54

Frequency range (MHz)	AVG Limit for 3 m		PK Limit for 3 m (1) (dB $\mu\text{V/m}$)
	($\mu\text{V/m}$)	(dB $\mu\text{V/m}$)	
Above 1000	500	54	74

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) and 1-18 GHz (Double ridge horn antenna), and 1m for the frequency range 18 GHz- 40 GHz (Double ridge horn antenna).

For radiated emissions in the range 18 - 40 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

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.

TEST SETUP (CONT.)

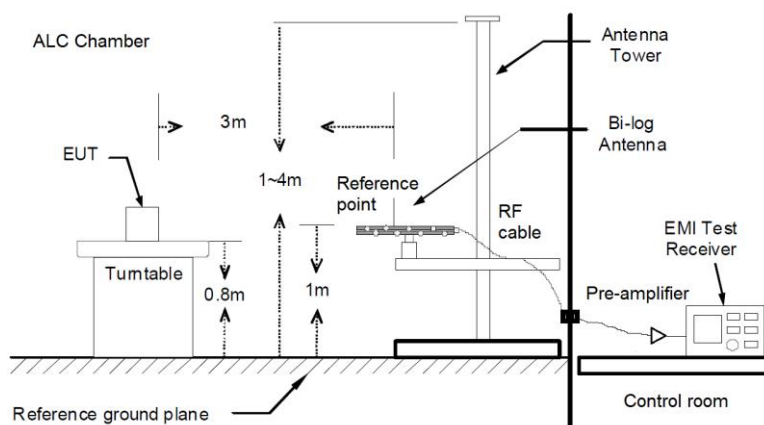


Fig A1: Generic setup for measurements from 30 to 1000MHz

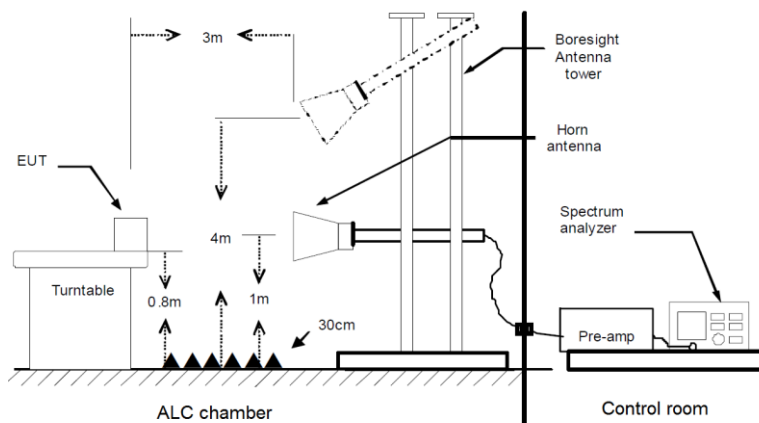


Fig A2: Generic setup for measurements from 1 to 18GHz

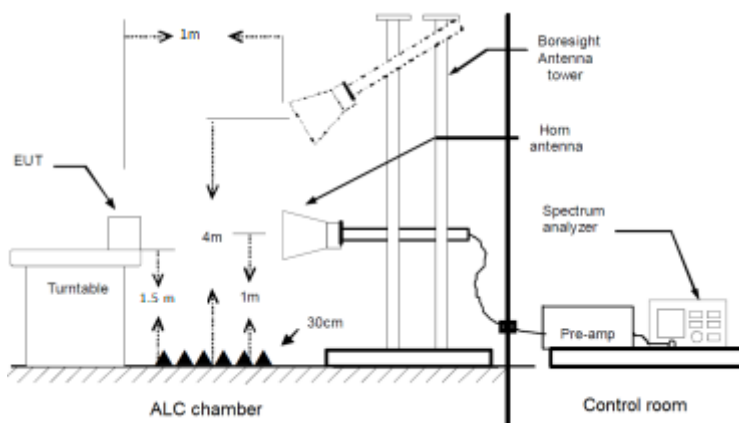
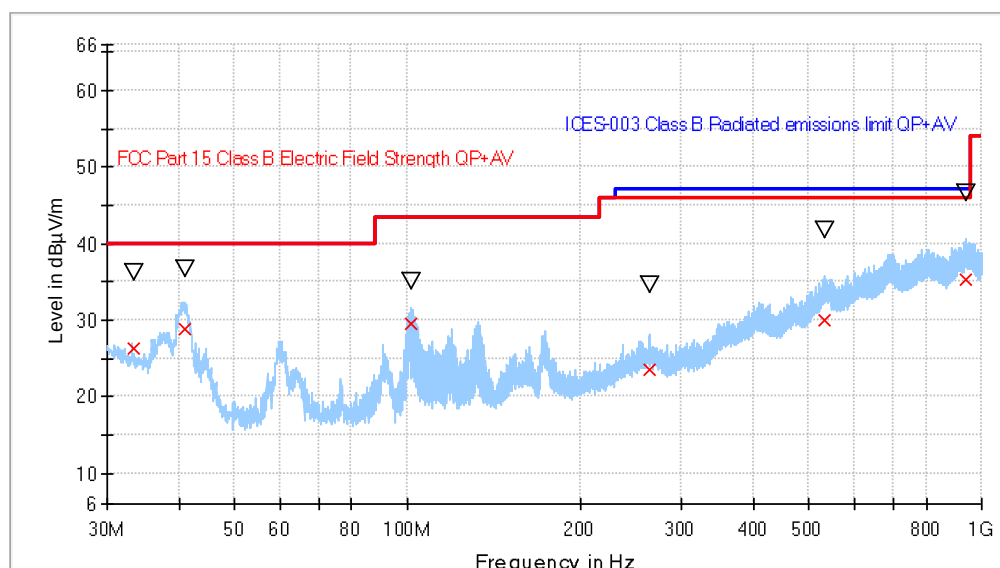


Fig A3: Generic setup for measurements from 18 to 40GHz

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	OM/01
TEST RESULTS:	CRmmnnxx: CR: Radiation Condition, mm: Sample number, nn: Operation mode, xx: Frequency Range (LR: Low Range, HR1: High Range 1-18GHz, HR2: High Range 18-40GHz.)

CRmmnnxx	Description	Result
CR0101LR	Range: 30 MHz - 1000 MHz Horizontal and Vertical Polarization	P
CR0101HR1	Range: 1GHz - 18 GHz Horizontal and Vertical Polarization	P
CR0101HR2	Range: 18GHz - 40 GHz Horizontal and Vertical Polarization	P

TEST RESULTS (Cont.):	CR0101LR
-----------------------	----------



— Preview Result 1-PK+
 — ICES-003 Class B Radiated emissions limit QP+AV
 — FCC Part 15 Class B Electric Field Strength QP+AV
 x Final_Result QPK
 ▽ Final_Result PK+

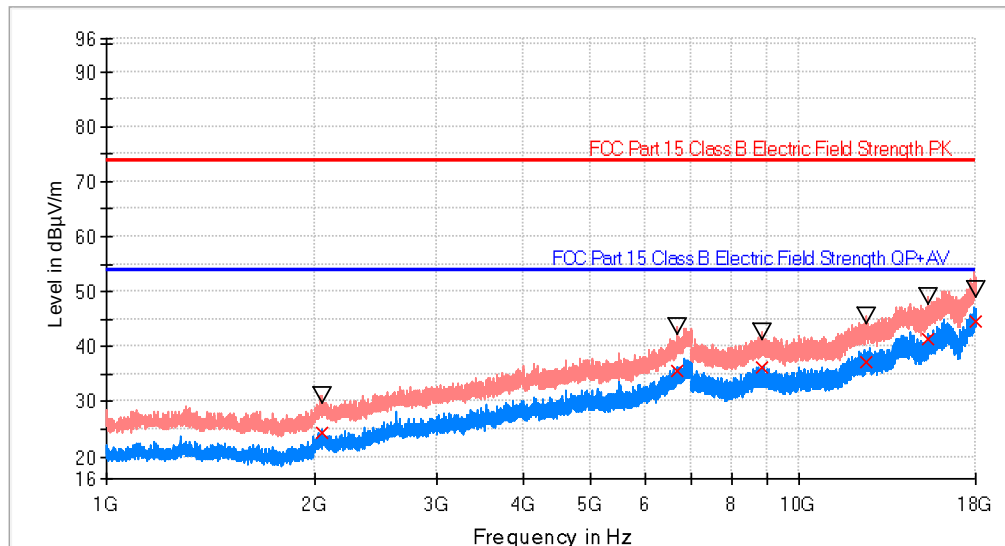
Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Azimuth (deg)
33.464000	26.33	36.22	40.00	13.67	V	-99.0
41.081000	28.87	36.64	40.00	11.13	V	-141.0
101.459000	29.46	35.16	43.50	14.04	V	79.0
264.691500	23.48	34.60	46.00	22.52	H	-166.0
531.327500	29.99	41.80	46.00	16.01	H	-168.0
937.750500	35.26	46.69	46.00	10.74	V	85.0

Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time
30 MHz - 1 GHz	48.5 kHz	PK+	100 kHz	1 s

TEST RESULTS (Cont.):

CR0101HR1



- AVG_MAXH
- PK+_MAXH
- FCC Part 15 Class B Electric Field Strength PK
- FCC Part 15 Class B Electric Field Strength QP+AV
- ▽ PK+_MAXH(1)@RE0101_HR1-18GHz_EMC_Plastic_updated
- × AVG_MAXH(1)@RE0101_HR1-18GHz_EMC_Plastic_updated

Limit and Margin_AVG

Frequency (MHz)	PK+_MAXH (dBμV/m)	AVG_MAXH (dBμV/m)	Margin - AVG (dB)	Limit - AVG (dBμV/m)
2046.500000	31.1	24.5	29.4	53.9
6658.000000	43.5	35.7	18.2	53.9
8843.500000	42.7	36.3	17.6	53.9
12517.000000	45.5	37.3	16.6	53.9
15393.500000	49.2	41.4	12.5	53.9
18000.000000	50.5	44.6	9.3	53.9

Limit and Margin_PK

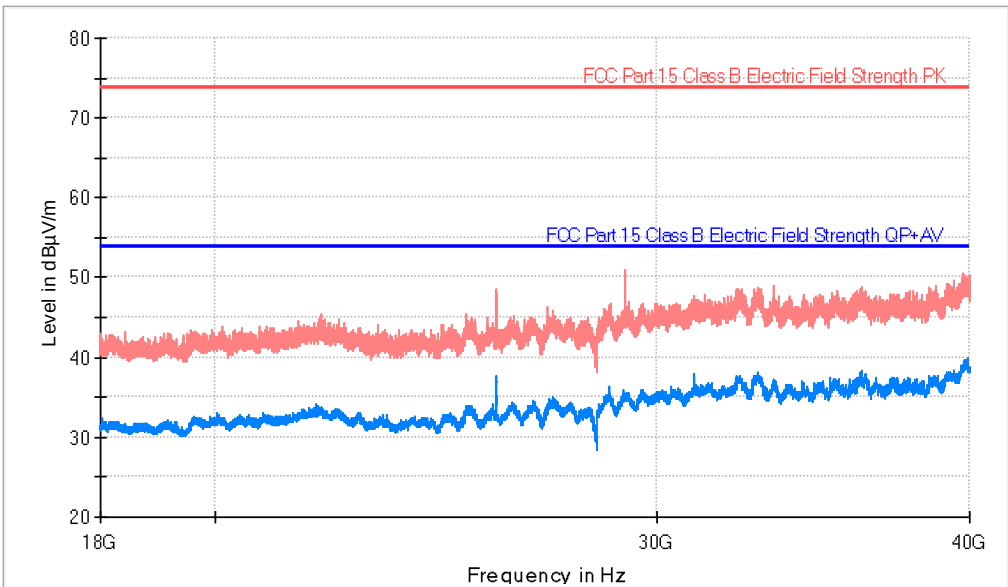
Frequency (MHz)	PK+_MAXH (dBμV/m)	AVG_MAXH (dBμV/m)	Margin - PK+ (dB)	Limit - PK+ (dBμV/m)
2046.500000	31.1	24.5	42.8	73.9
6658.000000	43.5	35.7	30.4	73.9
8843.500000	42.7	36.3	31.2	73.9
12517.000000	45.5	37.3	28.4	73.9
15393.500000	49.2	41.4	24.7	73.9
18000.000000	50.5	44.6	23.4	73.9

Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time
1 GHz - 3 GHz	500 kHz	PK+ ; AVG	1 MHz	1 s
3 GHz - 18 GHz	500 kHz	PK+ ; AVG	1 MHz	1 s

TEST RESULTS (Cont.):

CR0101HR2



— AVG_MAXH
 — PK+_MAXH
 — FCC Part 15 Class B Electric Field Strength PK
 — FCC Part 15 Class B Electric Field Strength QP+AV

Frequency (MHz)	PK+_MAXH (dBμV/m)	AVG_MAXH (dBμV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBμV/m)
29161.700000	51.0	34.8	H	19.1	53.9

Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time
18 GHz - 40 GHz	500 kHz	PK+ ; AVG	1 MHz	1 s

A.2. CONTINUOUS CONDUCTED EMISSION ON POWER LEADS - UNINTENTIONAL RADIATORS

LIMITS:	Product standard:	FCC CFR 47, Part 15, Subpart B (2018), Secs. 15.107 & ICES-003 Issue 7 – Update October (2021)
	Test standard:	FCC CFR 47, Part 15, Subpart B (2018), Secs. 15.107 & ICES-003 Issue 7 – Update October (2021); ANSI C63.4 (2014)

The applied limit for continuous conducted emissions in power leads, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (2018), Secs. 15.107 & ICES Issue 7 (2020), in the frequency range 0,15 to 30 MHz, for Class B equipment was:

FCC Rules and Regulations 47 CFR Part 15, Subpart B, Secs. 15.107 (a).

[54 FR 17714, Apr. 25, 1989, as amended at 57 FR 33448, July 29, 1992; 58 FR 51249, Oct. 1, 1993; 66 FR 19098, Apr. 13, 2001; 67 FR 45670, July 10, 2002]

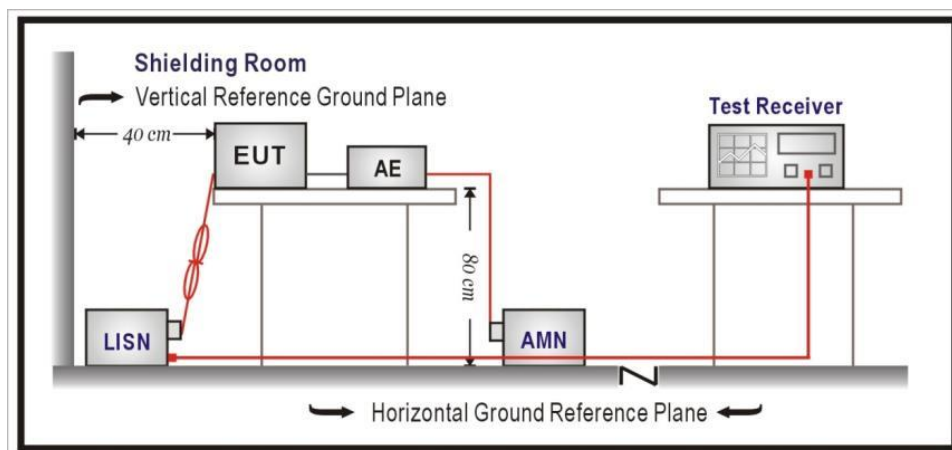
Frequency range (MHz)	Limit	
	Quasi-peak [dB(μV) ¹⁾	Average [dB(μV) ¹⁾
0,15 to 0,5	66-56 ²⁾	56-46 ²⁾
0,5 to 5	56	46
5 to 30	60	50

¹⁾ At the transition frequency, the lower limit applies.
²⁾ The limit decreases linearly with the logarithm of the frequency.

TEST SETUP

The EUT is placed on the test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rest of the EUT.

The EUT is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 ohms LISN port.

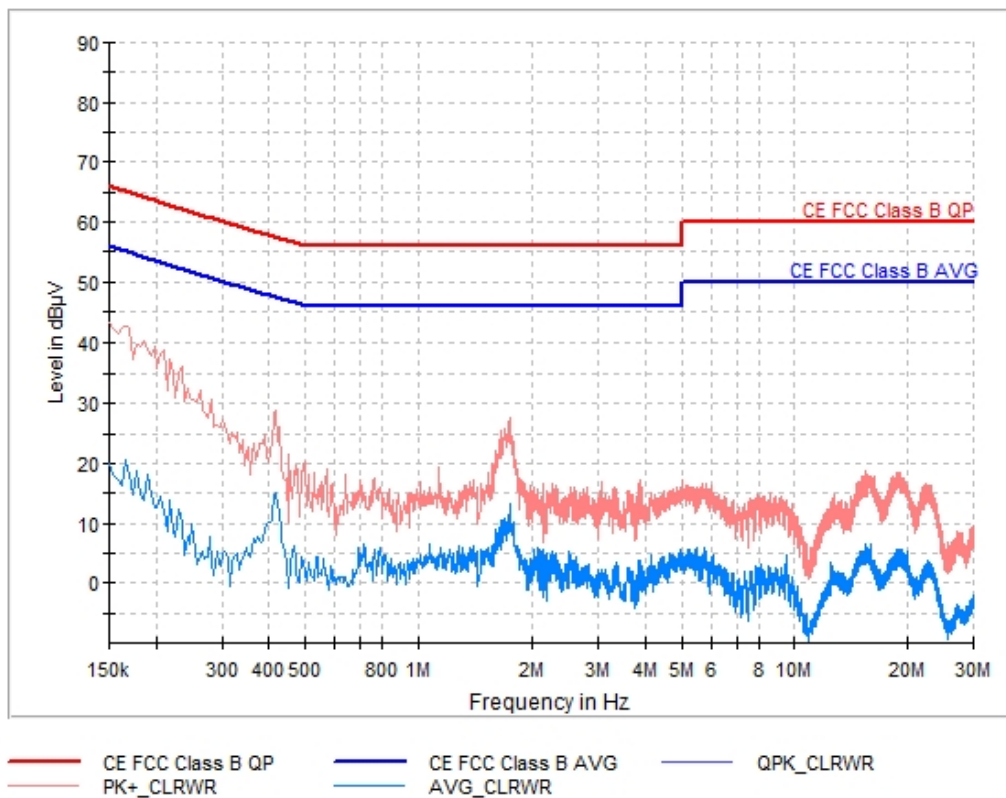


TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	OM/01
TEST RESULTS:	CCmmnnhh: CC: Conducted Condition, mm: Sample number, nn: Test condition mode, hh: wire

CRmmnnhh	DESCRIPTION	RESULT
CC0101L1	Phase wire noise.	P
CC0101N	Neutral wire noise.	P

TEST RESULTS (Cont.):

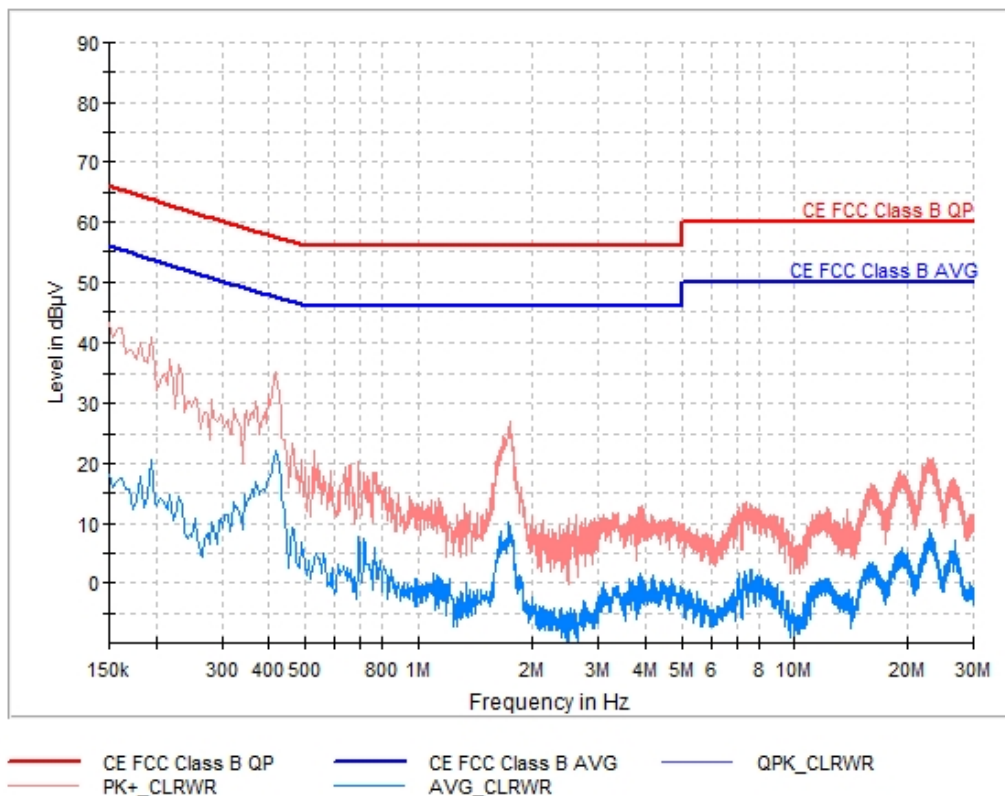
CC0101L1



Frequency (MHz)	PK+_CLRWR (dBµV)	AVG_CLRWR (dBµV)	Line	Margin - AVG (dB)	Limit - AVG (dBµV)
0.166000	42.5	20.5	L1	34.5	55.1
0.418000	28.8	15.1	L1	32.2	47.4
0.718000	15.1	6.6	L1	39.4	46.0
1.078000	16.0	6.4	L1	39.6	46.0
1.738000	27.6	13.3	L1	32.7	46.0
2.130000	16.6	5.4	L1	40.6	46.0
4.966000	15.5	5.6	L1	40.4	46.0
9.478000	12.2	4.6	L1	45.4	50.0
15.950000	17.0	6.4	L1	43.6	50.0
18.938000	17.8	5.6	L1	44.4	50.0

TEST RESULTS (Cont.):

CC0101N



Frequency (MHz)	PK+ CLRWR (dBμV)	AVG CLRWR (dBμV)	Line	Margin - AVG (dB)	Limit - AVG (dBμV)
0.194000	40.9	20.6	N	33.1	53.7
0.418000	35.1	22.0	N	25.4	47.4
0.434000	24.5	14.6	N	32.5	47.1
0.766000	18.4	5.8	N	40.2	46.0
1.730000	25.0	10.3	N	35.7	46.0
3.094000	11.3	0.2	N	45.8	46.0
3.890000	12.4	1.5	N	44.5	46.0
7.686000	11.9	2.3	N	47.7	50.0
15.878000	15.7	3.6	N	46.4	50.0
22.898000	19.4	8.9	N	41.1	50.0

Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30	4 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB

A.3. CONTINUOUS CONDUCTED EMISSION ON POWER LEADS - INTENTIONAL RADIATORS

LIMITS:	Product standard:	FCC CFR 47, Part 15, Subpart C (2018), Secs. 15.207 & ICES-003 Issue 7 – Update October (2021)
	Test standard:	FCC CFR 47, Part 15, Subpart C (2018), Secs. 15.207 & ICES-003 Issue 7 – Update October (2021); ANSI C63.4 (2014)

The applied limit for continuous conducted emissions in power leads, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart C (2018), Secs. 15.207 & ICES Issue 7 (2020), in the frequency range 0,15 to 30 MHz, for Class B equipment was:

FCC Rules and Regulations 47 CFR Part 15, Subpart C, Secs. 15.207 (a).

[54 FR 17714, Apr. 25, 1989, as amended at 56 FR 373, Jan. 4, 1991; 57 FR 33448, July 29, 1992; 58 FR 51249, Oct. 1, 1993; 67 FR 45671, July 10, 2002]

Frequency range (MHz)	Limit	
	Quasi-peak [dB(μV) ¹⁾	Average [dB(μV) ¹⁾
0,15 to 0,5	66-56 ²⁾	56-46 ²⁾
0,5 to 5	56	46
5 to 30	60	50

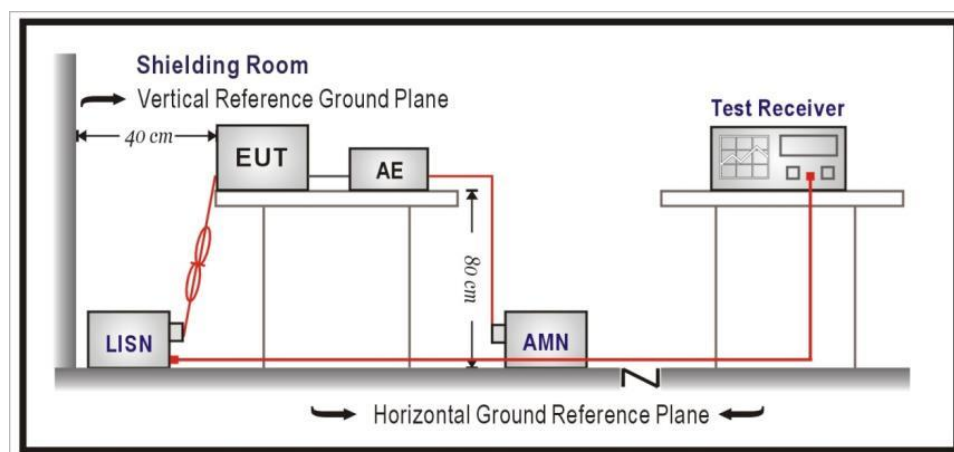
¹⁾ At the transition frequency, the lower limit applies.

²⁾ The limit decreases linearly with the logarithm of the frequency.

TEST SETUP

The EUT is placed on the test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rest of the EUT.

The EUT is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 ohms LISN port.

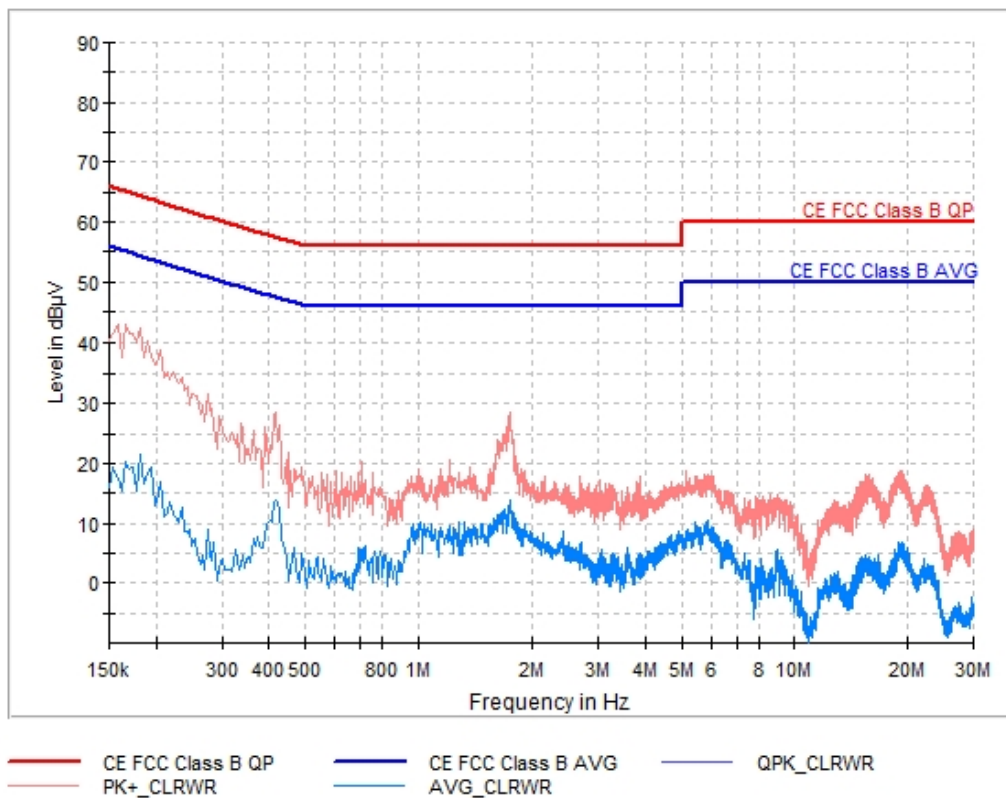


TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	OM/02
TEST RESULTS:	CCmmnnhh: CC: Conducted Condition, mm: Sample number, nn: Test condition mode, hh: wire

CRmmnnhh	DESCRIPTION	RESULT
CC0102L1	Phase wire noise.	P
CC0102N	Neutral wire noise.	P

TEST RESULTS (Cont.):

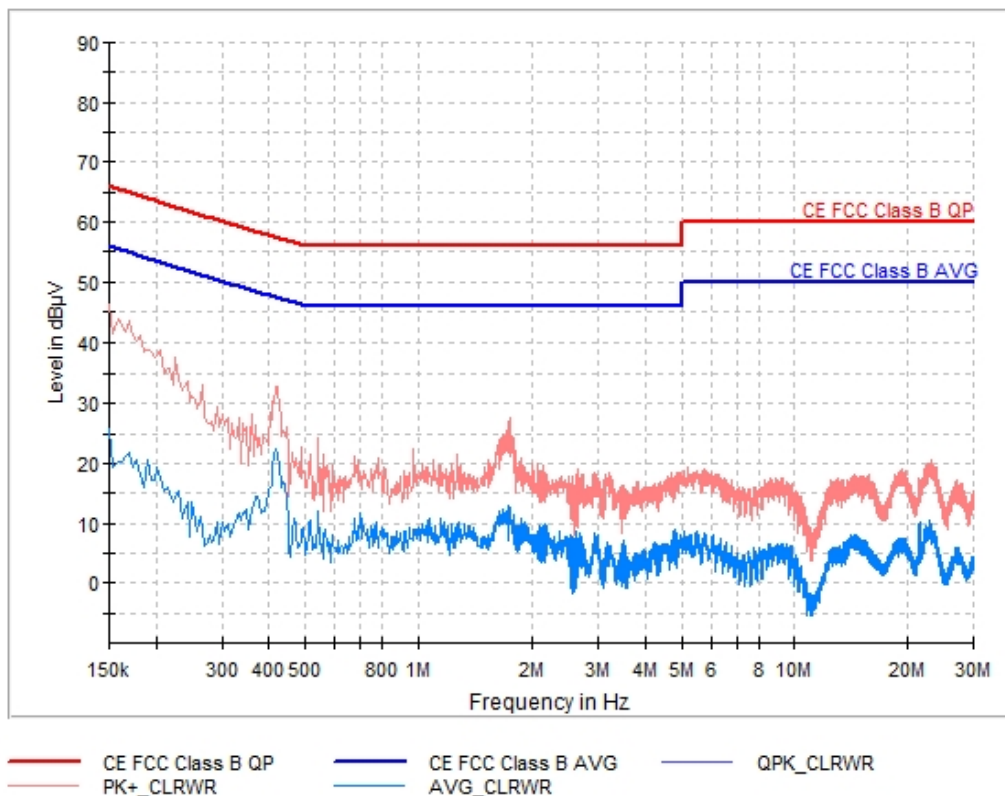
CC0102L1



Frequency (MHz)	PK+ _CLRWR (dBµV)	AVG _CLRWR (dBµV)	Line	Margin - AVG (dB)	Limit - AVG (dBµV)
0.182000	42.4	21.6	L1	32.7	54.3
0.418000	28.6	13.7	L1	33.7	47.4
0.434000	18.1	7.3	L1	39.7	47.1
1.010000	17.0	10.1	L1	35.9	46.0
1.738000	28.4	13.8	L1	32.2	46.0
2.402000	15.7	8.6	L1	37.5	46.0
4.878000	15.4	8.6	L1	37.4	46.0
6.142000	15.2	8.2	L1	41.8	50.0
16.802000	14.2	4.7	L1	45.3	50.0
18.986000	17.8	6.8	L1	43.2	50.0

TEST RESULTS (Cont.):

CC0102N



Frequency (MHz)	PK+_CLRWR (dBμV)	AVG_CLRWR (dBμV)	Line	Margin - AVG (dB)	Limit - AVG (dBμV)
0.198000	39.3	18.9	N	34.7	53.5
0.418000	34.7	22.1	N	25.3	47.4
0.434000	22.9	14.0	N	33.0	47.1
0.814000	16.0	4.8	N	41.2	46.0
1.734000	27.3	12.9	N	33.1	46.0
3.318000	11.8	1.9	N	44.1	46.0
4.734000	10.6	2.1	N	43.9	46.0
7.626000	12.9	2.8	N	47.2	50.0
15.854000	14.9	3.2	N	46.8	50.0
22.642000	19.4	7.7	N	42.3	50.0

Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30	4 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB