



Test report No:
 NIE: 51929REM.020

Test report

FCC Rules and Regulations CFR 47, Part 15, Subpart B
 (10-1-19 Edition) & ICES-003 Issue 6 (January 2016,
 Updated April 2019)

(*) Identification of item tested	Headunit with radio and Bluetooth
(*) Trademark	Panasonic
(*) Model and /or type reference tested	MIB3E_MQB_BTWIFI
Other identification of the product	Part number: 575.035.869 HW Version: X40 SW Version: X820 FCC ID: WUQ-MIB3HBTWIFI IC: 216R-MIB3HBTWIFI
(*) Features	Bluetooth, WLAN, FM, AM, DAB, USB.
Manufacturer	PANASONIC AUTOMOTIVE SYSTEMS EUROPE GMBH Robert Bosch Str. 27-29 63225, Langen, GERMANY.
Test method requested, standard	FCC CFR 47, Part 15, Subpart B (10-1-19 Edition) & ICES-003 (Updated 04-2019)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Rafael López EMC Consumer & RF Lab. Manager
Date of issue	2020-05-07
Report template No	FDT08_22 (*) "Data provided by the client"

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Competences and guarantees

DEKRA Testing and Certification is a testing laboratory accredited by the National Accreditation Body (ENAC - Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

DEKRA Testing and Certification is a FCC recognized accredited testing laboratory with appropriate scope of accreditation that include testing performed in this test report, FCC designation number ES0004.

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

DEKRA Testing and Certification 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 Testing and Certification at the time of performance of the test.

DEKRA Testing and Certification 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.

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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.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification and the Accreditation Bodies.

Uncertainty

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

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 30 MHz to 1000 MHz is $I = \pm 4,9$ dB for quasi-peak measurements, $I = \pm 4,6$ dB for peak measurements ($k = 2$)

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 1000 MHz to 26 GHz is $I = \pm 2,6$ dB for peaks and average measurements ($k = 2$)

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 an automotive head unit to be installed in cars with the following features: Bluetooth, FM, AM, USB.

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

Usage of samples

Samples under test have been selected by: The client.

Sample S/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
51929B/634	Headunit with radio and Bluetooth	MIB3E_MQB_BTWIFI	PM6-00124.10.19413F0447 PN: 575.035.869	2019-12-27

Auxiliary elements used with the sample S/01:

Control Nº	Description	Model	Serial Nº	Date of reception
51929B/027	USB box	---	---	2018-06-19
51929B/437	Antenna base	---	---	2019-02-26
51929B/441	Antenna	---	---	2019-02-26
51929B/450	Harness	---	---	2019-02-26

Test sample description

Ports..... :	Port name and description	Cable					
		Specified length [m]	Attached during test	Shielded			
	Not provided data		<input type="checkbox"/>	<input type="checkbox"/>			
Supplementary information to the ports..... :	N/A						
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	<input type="checkbox"/>	AC:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	AC:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	DC: 12Vdc					
<input type="checkbox"/>	DC:						
Rated Power	Not provided data						
Clock frequencies..... :	Not provided data						
Other parameters	FCC ID: WUQ-MIB3HBTWIFI IC: 216R-MIB3HBTWIFI						
Software version	X820						
Hardware version	X40						

Dimensions in mm (W x H x D)....:	Not provided data		
Mounting position	<input type="checkbox"/>	Table top equipment	
	<input type="checkbox"/>	Wall/Ceiling mounted equipment	
	<input type="checkbox"/>	Floor standing equipment	
	<input type="checkbox"/>	Hand-held equipment	
	<input checked="" type="checkbox"/>	Other: Vehicular environment equipment	
Modules/parts.....:	Module/parts of test item	Type	Manufacturer
	Not provided data		
Accessories (not part of the test item)	Description	Type	Manufacturer
	Not provided data		
Documents as provided by the applicant.....:	Description	File name	Issue date
	Not provided data		

Identification of the client

PANASONIC AUTOMOTIVE SYSTEMS EUROPE GMBH
 Robert Bosch Str. 27-29
 63225, Langen, GERMANY

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2020-01-17
Date (finish)	2020-01-20

Document history

Report number	Date	Description
51929REM.020	2020-05-07	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 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 test have been performed by the technical personnel: Antonio M. Sánchez & Carlos Haro.

Testing verdicts

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

Summary

Emission Test		
Requirement – Test case	Verdict	Remark
Radiated emission. Electromagnetic field measure (30 KHz – 1000 MHz)	P	---
Radiated emission. Electromagnetic field measure (1 GHz – 17 GHz)	P	---
Radiated emission. Electromagnetic field measure (17 GHz – 26 GHz)	P	---
Continuous conducted emission (150 kHz – 30 MHz)	N/A	(1)
<u>Supplymentary information and remarks:</u>		
(1) Equipment DC powered. Test applicable only in AC port.		

List of the equipment used during the test

Control Number	Description	Model	Manufacturer	Next Calibration
2942	EMI TEST RECEIVER 20Hz-40GHz	ESU40	ROHDE AND SCHWARZ	2021-09-17
4729	PRE-AMPLIFIER G>30dB 18-40GHz	BLMA 1840-1M	BONN ELEKTRONIK	2021-02-11
4656	HORN ANTENNA 18-40 GHz	BBHA 9170	SCHWARZBECK	2021-07-19
5641	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2021-07-31
6064	SEMIANECHOIC ABSORBER LINED CHAMBER	SAC-3	Frankonia	---
6126	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2020-04-03
6129	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2020-04-03
6132	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2020-04-05
5705	PRE-AMPLIFIER G>40dB 1-18 GHz	BLMA 0118-1M	BONN ELEKTRONIK	2020-04-30
6329	SHIELDED ROOM		FRANKONIA	---
6496	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK	2021-01-03

Appendix A: Test results

APPENDIX A CONTENT

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DESCRIPTION OF THE OPERATION MODES

The operation modes used by the samples to which the present report refers, are shown in the following table:

OPERATION MODE	DESCRIPTION
OM#01	EUT ON. Bluetooth, WiFi 2.4GHz and WiFi 5GHz communication not established. Power supply: 12 Vdc.

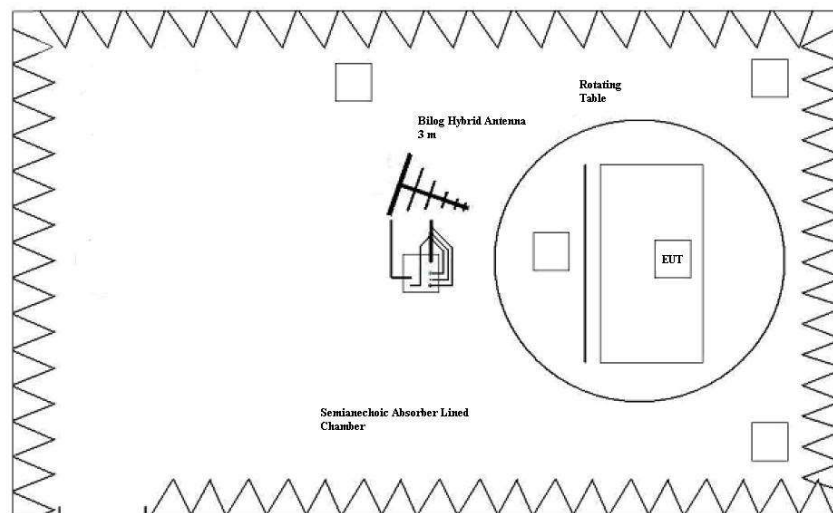
RADIATED EMISSION. ELECTROMAGNETIC FIELD MEASURE

LIMITS:	Product standard:	FCC CFR 47, Part 15, Subpart B (10-1-19 Edition), Secs. 15.109; ICES-003 (January 2016, updated April 2019)
	Test standard:	FCC CFR 47, Part 15, Subpart B (10-1-19 Edition), Secs. 15.109; ICES-003 (January 2016, updated April 2019)

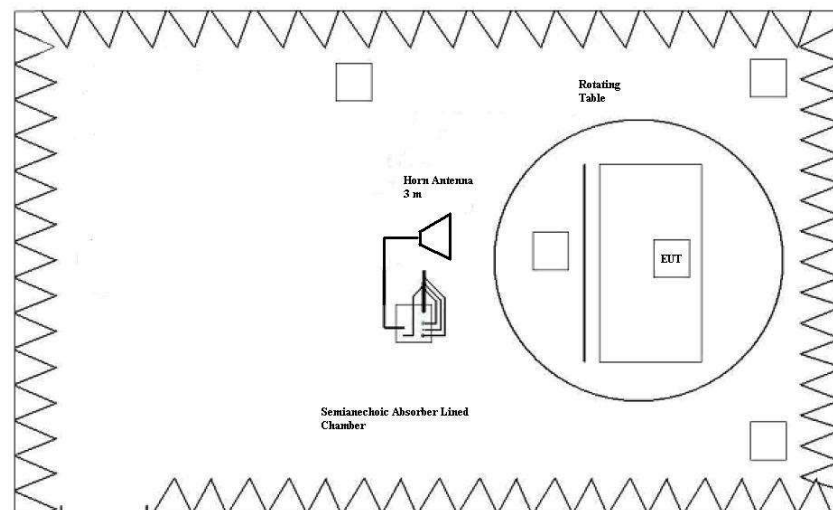
Limits of interference Class B

The applied limit for radiated emissions, 3 m distance, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (10-1-19 Edition), Secs. 15.109 & ICES-003 Issue 6 (Updated 04-2019) in the frequency range 30 MHz to 17 GHz for class B devices.

Frequency (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



Setup for measurements < 1GHz.



Setup for measurements > 1GHz.

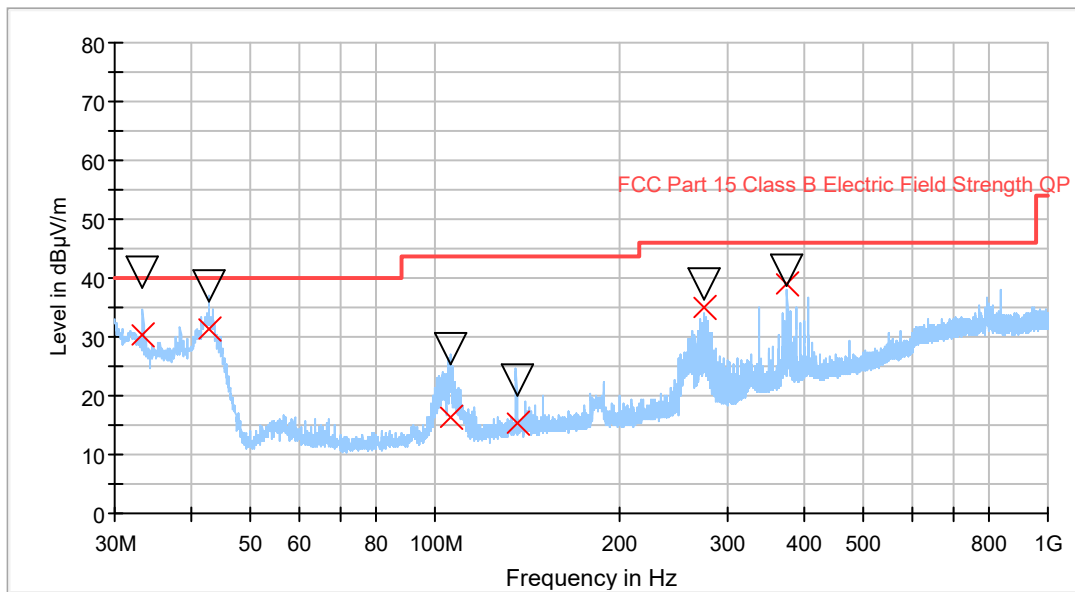
TESTED SAMPLE:	S/01
TESTED OPERATION MODES:	OM#01
TEST RESULTS:	CRmmnnRRPP: CR, Radiated Condition; mm: Sample number; nn: Operation mode; RR: Range; PP: Polarization.

CRmmnnRRPP	Description	Result
CR0101LR	Range: 30 MHz - 1000 MHz.	P
CR0101HR1_HP	Range: 1 GHz – 17 GHz. Horizontal polarization.	P
CR0101HR1_VP	Range: 1 GHz – 17 GHz. Vertical polarization.	P
CR0101HR2_HP	Range: 17 GHz - 26 GHz. Horizontal polarization.	P
CR0101HR2_VP	Range: 17 GHz - 26 GHz. Vertical polarization.	P

Radiated Emission. CR0101LR

Project: 51929REM.020
 Company: PANASONIC AUTOMOTIVE & INDUSTRIAL SYSTEMS EUROPE GMBH
 Sample: S/01
 Operation mode: OM#01
 Description: EUT ON. Bluetooth, WiFi 2.4GHz and WiFi 5GHz communication not established. Power supply: 12 Vdc.

Full Spectrum



— Peak Preview
 — FCC Part 15 Class B Electric Field Strength QP
 X QuasiPeak
 ▽ MaxPeak

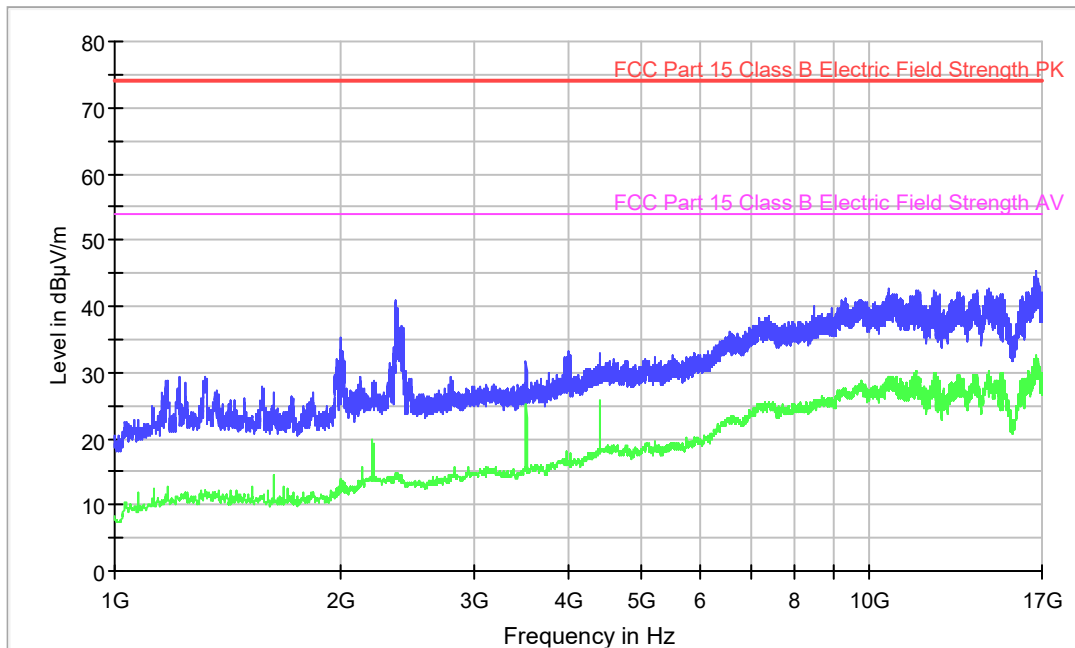
Maximizations

Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Height (cm)	Pol	Azimuth (deg)
33.361000	30.31	40.94	135.0	V	-12.0
42.731000	31.21	38.56	154.0	V	9.0
106.096000	16.26	28.10	139.0	V	40.0
135.986000	15.19	22.54	107.0	V	71.0
274.172000	34.94	39.11	102.0	H	87.0
375.974000	39.05	41.47	174.0	V	-37.0

Radiated Emission. CR0101HR1_HP

Project: 51929REM.020
 Company: PANASONIC AUTOMOTIVE & INDUSTRIAL SYSTEMS EUROPE GMBH
 Sample: S/01
 Operation mode: OM#01
 Description: EUT ON. Bluetooth, WiFi 2.4GHz and WiFi 5GHz communication not established. Power supply: 12 Vdc.. Horizontal polarization.

RE FCC Part 15 ClassB 1-17 GHz



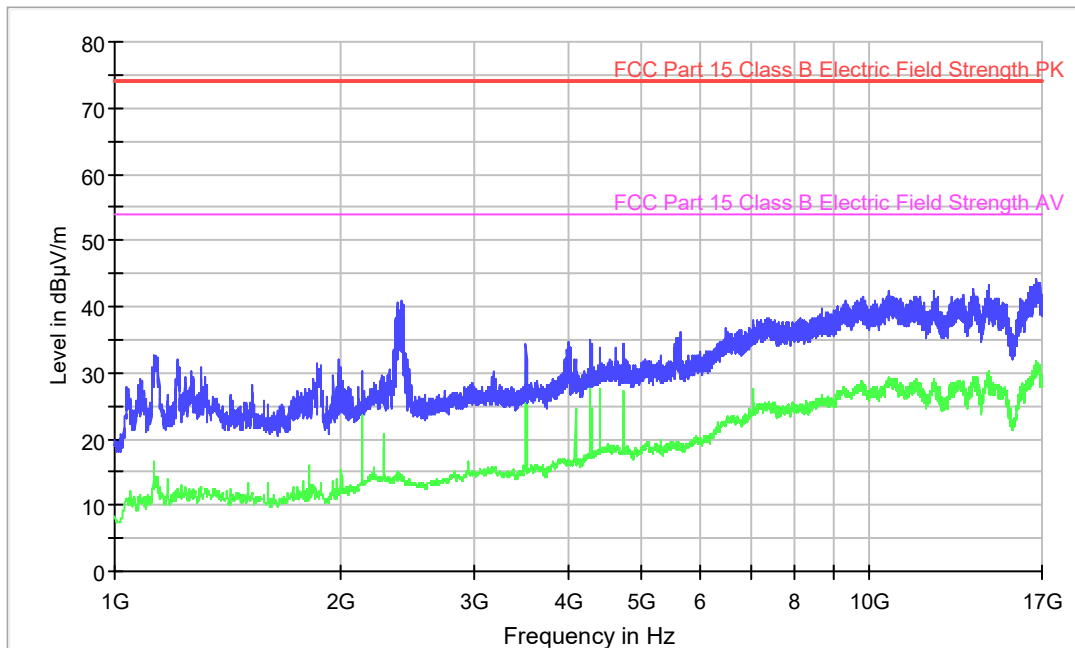
Subrange Maxima

Frequency (MHz)	PK+ CLRWR (dBµV/m)	AVG CLRWR (dBµV/m)
2365.600000	40.9	14.4
4010.400000	33.1	16.5
4409.200000	32.8	24.2
7388.400000	38.4	25.3
8497.200000	40.0	25.8
10597.600000	41.3	28.6
10664.400000	42.6	29.0
12231.600000	42.5	29.2
14449.600000	42.8	29.9
16653.600000	45.3	32.3

Radiated Emission. CR0101HR1_VP

Project: 51929REM.020
 Company: PANASONIC AUTOMOTIVE & INDUSTRIAL SYSTEMS EUROPE GMBH
 Sample: S/01
 Operation mode: OM#01
 Description: EUT ON. Bluetooth, WiFi 2.4GHz and WiFi 5GHz communication not established. Power supply: 12 Vdc. Vertical polarization.

RE FCC Part 15 ClassB 1-17 GHz



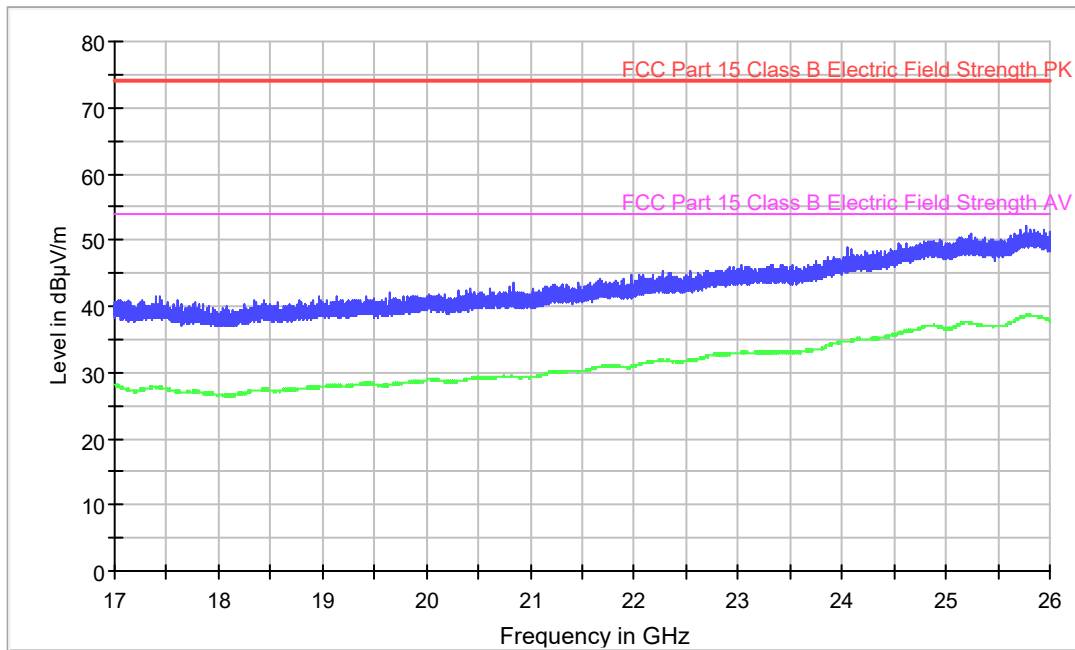
Subrange Maxima

Frequency (MHz)	PK+ CLRWR (dBµV/m)	AVG_CLRWR (dBµV/m)
2395.600000	40.9	14.2
4004.400000	34.6	16.7
5621.200000	36.2	19.1
7354.800000	38.2	25.0
8678.400000	39.8	25.7
9846.000000	41.5	28.1
10661.600000	42.5	29.0
13752.000000	42.6	29.0
14457.600000	43.2	29.8
16691.200000	44.2	30.9

Radiated Emission. CR0101HR2_HP

Project: 51929REM.020
 Company: PANASONIC AUTOMOTIVE & INDUSTRIAL SYSTEMS EUROPE GMBH
 Sample: S/01
 Operation mode: OM#01
 Description: EUT ON. Bluetooth, WiFi 2.4GHz and WiFi 5GHz communication not established. Power supply: 12 Vdc.Horizontal polarization.

RE FCC Part 15 ClassB 17-26GHz



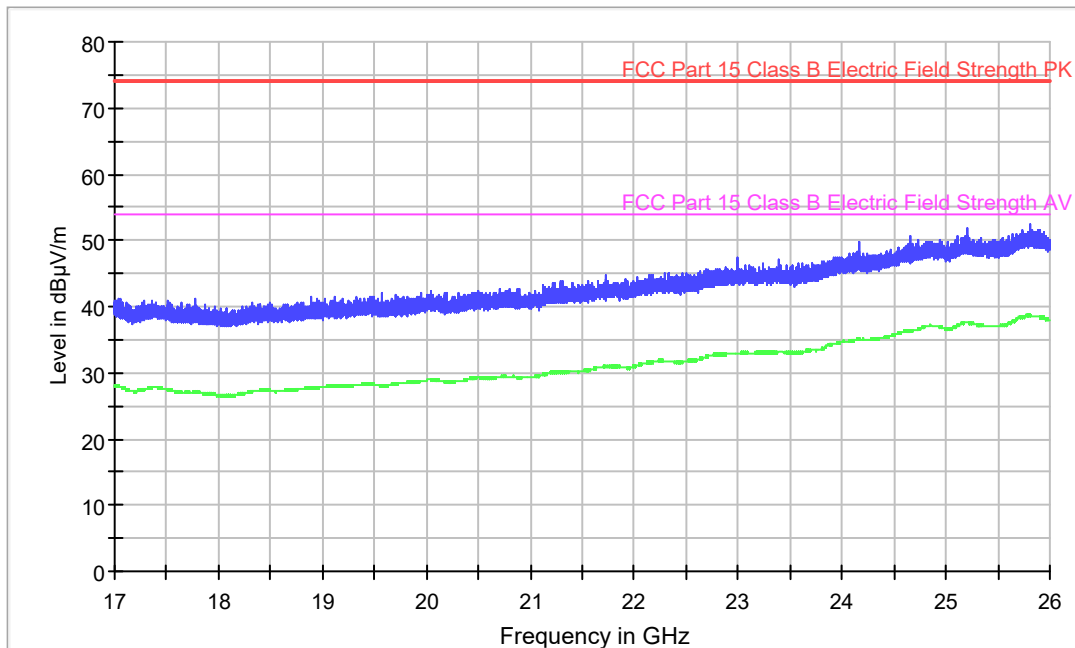
Subrange Maxima

Frequency (MHz)	PK+ CLRWR (dBµV/m)	AVG CLRWR (dBµV/m)
17405.600000	41.6	27.8
18336.400000	40.9	27.2
19645.600000	42.0	28.2
20426.000000	42.6	29.1
21458.000000	43.6	30.2
22267.200000	45.2	31.8
23026.400000	46.2	32.9
24043.600000	48.9	34.6
24949.200000	50.2	36.8
25769.200000	52.1	38.6

Radiated Emission. CR0101HR2_VP

Project: 51929REM.020
 Company: PANASONIC AUTOMOTIVE & INDUSTRIAL SYSTEMS EUROPE GMBH
 Sample: S/01
 Operation mode: OM#01
 Description: EUT ON. Bluetooth, WiFi 2.4GHz and WiFi 5GHz communication not established. Power supply: 12 Vdc. Vertical polarization.

RE FCC Part 15 ClassB 17-26GHz



Subrange Maxima

Frequency (MHz)	PK+ CLRWR (dBµV/m)	AVG_CLRWR (dBµV/m)
17047.600000	41.2	27.9
18760.400000	40.7	27.4
19572.400000	42.0	28.1
20495.200000	42.5	29.2
21290.800000	43.8	30.1
22338.000000	45.2	31.8
22999.600000	47.4	32.9
24174.000000	49.8	35.1
24652.800000	50.5	36.3
25816.400000	52.3	38.6