

Test Report No:  
 NIE: 72370RRF.010A1

## Partial Test Report

### USA FCC Part 15.31(h), 15.209 15.247, 15.407

(*) Identification of item tested	CIVIC (Central In-Vehicle Infotainment Computer)
(*) Trademark	Bosch
(*) Model and /or type reference	MBCI2LS4PR1
Other identification of the product	FCC ID: 2AUXS-MBCI2LS4PR1
(*) Features	AM/FM/DAB/SIRIUS, GNSS, 2.4/5GHz WLAN, Bluetooth 5.1, Video/Audio etc HW version: D1.1 SW version: E23.3
Applicant	Robert Bosch GmbH Robert-Bosch-Strasse 200 31139, Hildesheim, Germany
Test method requested, standard	USA FCC Part 15.31 (10-1-21) Edition: Measurement standards. USA FCC Part 15.407 (10-1-21) Edition: Unlicensed National Information Infrastructure (U-NII) Devices. General technical requirements. USA FCC Part 15.247 (10-1-21) Edition: Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz. USA FCC Part 15.209 (10-1-21) Edition: Radiated emission limits; general requirements. Guidance for Performing Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid Systems Devices Operating Under Section 15.247 of the FCC Rules. 558074 D01 Meas Guidance v05r02 dated April 2, 2019. Guidance for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices 789033 D02 General U-NII Test Procedures New Rules v02r01 dated Dec 14, 2017. ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices. -Transmitter out of band radiated emissions with simultaneous transmissions.
Approved by (name / position & signature)	Rafael López EMC/RF Lab. Manager
Date of issue	2022-10-20
Report template No.	FDT08_24 (*) "Data provided by the client"

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## Competences and guarantees

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## General conditions

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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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## Uncertainty

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

## Data provided by the client

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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 a CIVIC Central In-Vehicle Infotainment Computer, including WLAN/ Bluetooth, GPS, AM/FM/DAB receiver.

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 result.

## Usage of samples

Samples undergoing test have been selected by: The client.

Id	Control Number	Description	Model	Serial No.	Date of Reception	Application
S/01	72370_177	CIVIC Central In-Vehicle Infotainment Computer LS4+	MBCI2LS4PR1	0006193	2022-05-26	Equipment Under Test
S/01	72370_6	Harness	--	--	2022-05-17	Equipment Under Test
S/01	72370_7	USB Cable	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_20	USB adapter	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_13	Connecting cable	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_106	BT/WLAN antenna	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_107	BT/WLAN antenna	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_108	BT/WLAN antenna	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_109	BT/WLAN antenna	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_31	FAKRA 4n1 cable	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_32	SMA 4n1 cable	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_34	FAKRA to SMA adapter	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_35	FAKRA to SMA adapter	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_36	FAKRA to SMA adapter	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_37	FAKRA to SMA adapter	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_38	DC Block	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_39	DC Block	--	--	2022-05-17	Auxiliary Equipment
S/01	72370_42	DC Block	--	--	2022-05-17	Auxiliary Equipment

Id	Control Number	Description	Model	Serial No.	Date of Reception	Application
S/01	72370_43	FAKRA to SMA cable	--	--	2022-05-17	Auxiliary Equipment

Notes referenced to samples during the project:

Id	Type
S/01	Sample used for Radiated tests.

## Test sample description

Ports..... :	Port name and description	Cable					
		Specified max length [m]	Attached during test	Shielded	Coupled to patient <sup>(3)</sup>		
	Main Connector	2m	[X]	[ ]	[ ]		
	Most Connector	2m	[X]	[ ]	[ ]		
	Fakra Quad Connector AM/FM/DAB	.....	[X]	[X]	[ ]		
	Fakra Single Connector GPS	.....	[X]	[X]	[ ]		
	Fakra Quad Connector WLAN/BT	.....	[X]	[X]	[ ]		
	.....	.....	[ ]	[ ]	[ ]		
Supplementary information to the ports..... :	.....						
Rated power supply .....	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[ ]	AC: .....	[ ]	[ ]	[ ]	[ ]	[ ]
	[X]	DC: 9-16V nominal 12 VDC by vehicle battery					
Rated Power .....	.....						
Clock frequencies.....:	.....						
Other parameters .....	.....						
Software version .....	E23.3						
Hardware version .....	D1.1						
Dimensions in cm (W x H x D) .....	.....						
Mounting position .....	[ ]	Table top equipment					
	[ ]	Wall/Ceiling mounted equipment					
	[ ]	Floor standing equipment					

	[ ]	Hand-held equipment		
	[X]	Other: Cluster in the car		
Modules/parts.....:	Module/parts of test item		Type	Manufacturer
	.....		.....	.....
Accessories (not part of the test item) .....	Description		Type	Manufacturer
	Antennas		.....	.....
	HUD		.....	.....
	SA2 Panel		.....	.....
	Cameras		.....	.....
	.....		.....	.....
Documents as provided by the applicant .....	Description		File name	Issue date
	.....		.....	.....

<sup>(3)</sup> Only for Medical Equipment

## Identification of the client

Robert Bosch GmbH  
Robert-Bosch-Strasse 200  
31139, Hildesheim, Germany

## Testing period and place

<b>Test Location</b>	DEKRA Testing and Certification S.A.U.
<b>Date (start)</b>	2022-09-16
<b>Date (finish)</b>	2022-09-19

## Document history

Report number	Date	Description
72370RRF.010	2022-10-18	First release.
72370RRF.010A1	2022-10-20	Second release. Modification of Hardware Version of sample tested and correction of minor typos. This modification of test report cancels and replaces the test report 727370RRF.010.

## Environmental conditions

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

<b>Temperature</b>	Min. = 15 °C Max. = 35 °C
<b>Relative humidity</b>	Min. = 20 % Max. = 75 %

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

<b>Temperature</b>	Min. = 15 °C Max. = 35 °C
<b>Relative humidity</b>	Min. = 20 % Max. = 75 %

## Remarks and comments

The tests have been performed by the technical personnel: Pablo Redondo and Miguel Manuel López.

Used instrumentation:

Control No.	Equipment	Model	Manufacturer	Next Calibration
6791	SEMIANECHOIC ABSORBER LINED CHAMBER IV	FACT 3 200 STP	ETS LINDGREN	2024-06-07
6792	SHIELDED ROOM	S101	ETS LINDGREN	N/A
7445	DC POWER SUPPLY 30V/5A	U8002A	KEYSIGHT TECHNOLOGIES	---
7760	DIGITAL MULTIMETER	175	FLUKE	2022-11-04
7817	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2023-12-30
6496	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK	2023-08-24
4657	HORN ANTENNA 18-40GHz	BBHA 9170	SCHWARZBECK	2023-05-05
6143	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2023-10-29
7862	PRE-AMPLIFIER G>30dB 18-40GHz	BLMA 1840-3G	BONN ELEKTRONIK	2023-02-15
3783	PRE-AMPLIFIER G>30dB 1GHz-18GHz	BLMA 0118-3A	BONN ELEKTRONIK	2022-12-01
6144	PRE-AMPLIFIER G>40dB 10MHz-6GHz	BLNA 0160-01N	BONN ELEKTRONIK	2023-03-17
4848	EMC/RF MEASUREMENT SOFTWARE	EMC32	ROHDE AND SCHWARZ	N/A



## Testing verdicts

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

## Summary

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FCC PART 15 PARAGRAPH		
Requirement – Test case	Verdict	Remark
FCC 15.31 (h), FCC 15.209 (a), 15.247 (d), 15.407 (b): - Emission limitations radiated (Transmitter)	P	(1)
<u>Supplementary information and remarks:</u> (1) Only simultaneous transmission radiated spurious emission test was requested.		

## Appendix A: Test results

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## TEST CONDITIONS

(\*): Data provided by the client.

### POWER SUPPLY (\*):

Vnominal: 12Vdc  
 Type of Power Supply: External Battery.

### ANTENNA (\*):

Type of Antennas: External.

### RADIOS AND CHANNELS TESTED (\*):

\* Simultaneous Transmission Bluetooth EDR Chipset 1, Bluetooth EDR Chipset 2, WLAN 2.4GHz.

Bluetooth EDR Chipset 1		
Mode:	8DPSK - 3DH5	
Channel Spacing:	1 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Middle	2441

Bluetooth EDR Chipset 2		
Mode:	PI/4-DQPSK - 2DH5	
Channel Spacing:	1 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Low	2402

WLAN 2.4 GHz (IEEE 802.11b/g/n20/ax20)		
Mode:	802.11 ax20 RU26_8	
Frequency Range:	2412 MHz to 2462 MHz	
Channel Spacing:	20 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	High	2462

\* Simultaneous Transmission Bluetooth EDR Chipset 1, Bluetooth EDR Chipset 2, WLAN 5 GHz band U-NII-1:

Bluetooth EDR Chipset 1		
Mode:	8DPSK - 3DH5	
Channel Spacing:	1 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Middle	2441

Bluetooth EDR Chipset 2		
Mode:	PI/4-DQPSK - 2DH5	
Channel Spacing:	1 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Low	2402

WLAN 5 GHz (IEEE 802.11 a20/n2040/ac/ax/204080) / U-NII-1		
Mode:	802.11 ax80 RU26_36	
Frequency Range:	5150 MHz to 5250 MHz	
Channel Spacing:	80 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	42	5210

\* Simultaneous Transmission Bluetooth EDR Chipset 1, Bluetooth EDR Chipset 2, WLAN 5 GHz band U-NII-3:

Bluetooth EDR Chipset 1		
Mode:	8DPSK - 3DH5	
Channel Spacing:	1 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Middle	2441

Bluetooth EDR Chipset 2		
Mode:	PI/4-DQPSK - 2DH5	
Channel Spacing:	1 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Low	2402

	WLAN 5 GHz (IEEE 802.11 a20/n2040/ac/ax/204080) / U-NII-3	
Mode:	802.11 ax20 RU26_0	
Frequency Range:	5750 MHz to 5850 MHz	
Channel Spacing:	20 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Low: 149	5745

The test set-up was made in accordance to the general provisions of FCC DTS Measurement 558074 D01 DTS Meas Guidance v05r2 dated April 2, 2019 and FCC Unlicensed National Information Infrastructure (U-NII) Devices 789033 D02 General U-NII Test Procedures New Rules v02r01 dated Dec 14, 2017.

The EUT was tested in the following operating mode:

- Continuous transmission with a modulated carrier at maximum power in all required channels selecting the supported data rates/modulations types.

During transmitter test the EUT was being controlled by the SW tool to operate in a continuous transmit mode on the test channel as required and in each of the different modulation modes.

#### Selected Transmission Mode for each Radio:

The following configurations were selected based on preliminary testing that identified those corresponding to the worst-cases:

\* Bluetooth EDR: Transmitter radiated spurious emissions tests were performed with the EUT transmitting in BT EDR mode configuration as this mode was found as the worst-case for PSD test of all Bluetooth modes.

\* WLAN 2.4GHz: Transmitter radiated spurious emissions tests were performed with the EUT transmitting in 802.11 ax20 / MCS0 / RU26 Offset 8 mode configuration as this mode was found as the worst-case for spurious emissions than all the other 2.4 GHz modes.

\* WLAN 5 GHz band U-NII-1: Transmitter radiated spurious emissions tests were performed with the EUT transmitting in 802.11 ax80 / MCS0 / RU26 Offset 36 mode configuration as this mode was found as the worst-case for spurious emissions than all the other WLAN 5 GHz U-NII-1 modes.

\* WLAN 5 GHz band U-NII-3: Transmitter radiated spurious emissions tests were performed with the EUT transmitting in 802.11 ax20 / MCS0 / RU26 Offset 0 mode configuration as this mode was found as the worst-case for spurious emissions than all the other WLAN 5 GHz U-NII-3 modes.

## TESTED SIMULTANEOUS TRANSMISSION MODES:

\* **Simultaneous transmission Bluetooth EDR Chipset #1, Bluetooth EDR Chipset #2, WLAN 2.4GHz** with the EUT configured to simultaneously transmit three signals at maximum output power:

BTEDR #1 in 3-DH5 mode, BTEDR #2 in 2-DH5 mode, WLAN 2.4 GHz in 802.11 ax20 / MCS0 / RU26 Offset 8.

\* **Simultaneous transmission Bluetooth EDR Chipset #1, Bluetooth EDR Chipset #2, WLAN 5 GHz band U-NII-1** with the EUT configured to simultaneously transmit three signals at maximum output power:

BTEDR #1 in 3-DH5 mode, BTEDR #2 in 2-DH5 mode, WLAN 5 GHz band U-NII-1 in 802.11 ax80 / MCS0 / RU26 Offset 36.

\* **Simultaneous transmission Bluetooth EDR Chipset #1, Bluetooth EDR Chipset #2, WLAN 5 GHz band U-NII-3** with the EUT configured to simultaneously transmit three signals at maximum output power:

BTEDR #1 in 3-DH5 mode, BTEDR #2 in 2-DH5 mode, WLAN 5 GHz band U-NII-3 in 802.11 ax20 / MCS0 / RU26 Offset 0.

### RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna (Bilog antenna for the range between 30 MHz to 1 GHz and 1 GHz-17 GHz Double ridge horn antenna) is situated at a distance of 3 m and at a distance of 1.5m for the frequency range 17 GHz-40 GHz (17 GHz-40 GHz horn antenna).

For radiated emissions in the range 17 GHz-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.

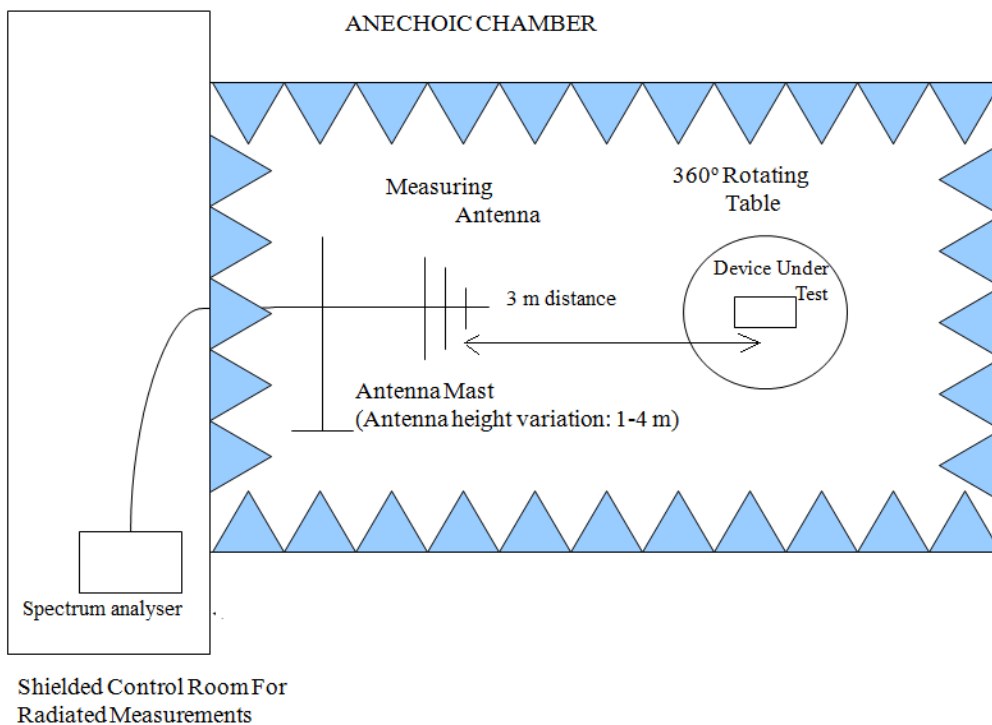
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height (Bilog antenna and Double ridge horn antenna) was varied from 1 to 4 meters to find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

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

The final measured value, for the given emission, in the tables below incorporates the calibrated antenna factor and cable loss.

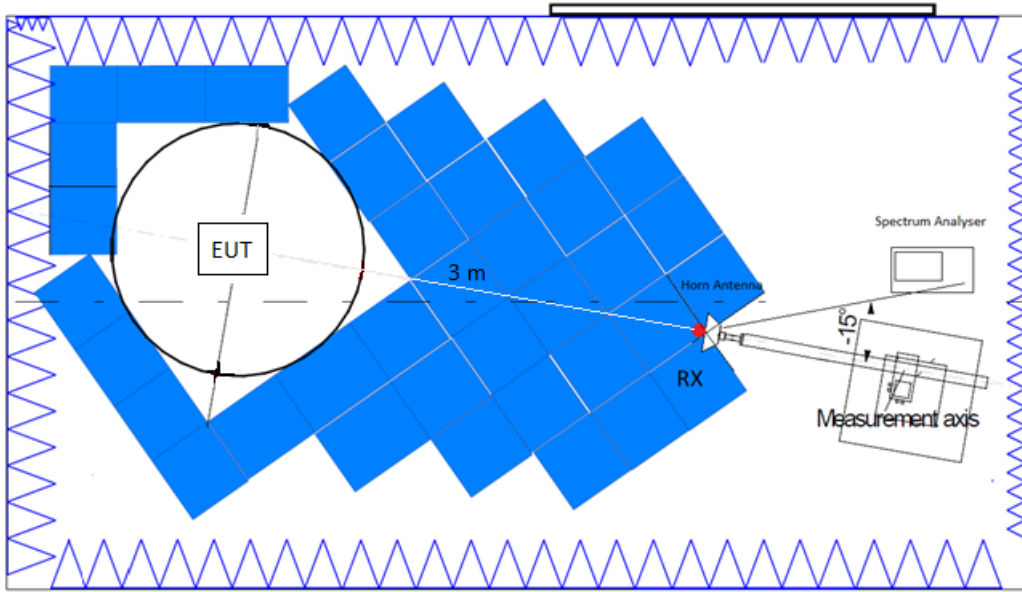
A resolution bandwidth/video bandwidth of 100 kHz/300 kHz was used for frequencies below 1 GHz and 1MHz/3MHz for frequencies above 1 GHz.

Radiated measurements setup from 30 MHz to 1 GHz:

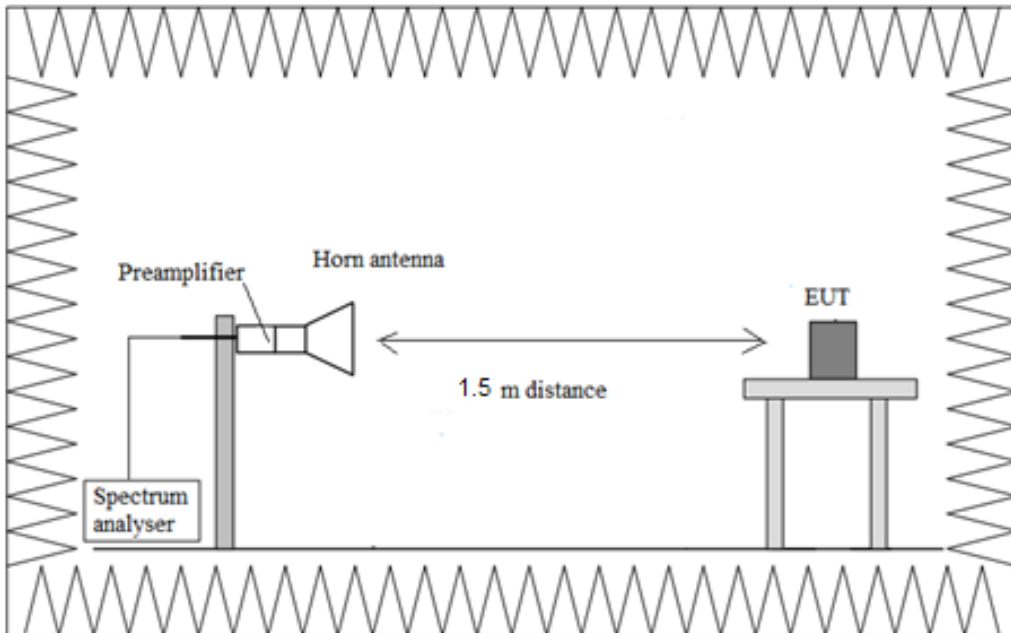




Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup  $f > 17$  GHz:



## FCC 15.209 (a), 15.247 (d), 15.407 (b) Emission limitations radiated (Transmitter)

### SPECIFICATION:

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), appearing outside of the band 13.110 MHz - 14.010 MHz band must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)):

Frequency Range (MHz)	Field strength ( $\mu\text{V}/\text{m}$ )	Field strength ( $\text{dB}\mu\text{V}/\text{m}$ )	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705 - 30.0	30	29.54	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 40000	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, specified when measuring with peak detector function.

### RESULTS:

The situation and orientation of the equipment under test were 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.

All tests were performed in a semi-anechoic chamber at a distance of 3 m for the frequency range 30 MHz-17 GHz and at distance of 1.5 m for the frequency range 17 GHz-40GHz.

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 performed on the following worst-cases in all relevant test channels:

• \* **Simultaneous transmission mode BT EDR Chipset #1, BT EDR Chipset #2, WLAN 2.4 GHz**

Bluetooth EDR 8DPSK (Chipset #1):	Middle Channel (2441 MHz).
Bluetooth EDR PI4-DQPSK (Chipset #2):	Low Channel (2402 MHz).
WLAN 2.4 GHz 802.11 ax:	High Channel (2462 MHz). BW: 20 MHz. MCS0. RU 26 Offset 8.

LIMIT: The spurious frequencies were measured at 3 meters. The limit of the test is determined by:

Frequency Range	Detector	Limit at 3m (dBµV/m)
30 MHz to 88 MHz	Quasi-peak	40 dBµV/m
88 MHz to 216 MHz	Quasi-peak	43.5 dBµV/m
216 MHz to 960 MHz	Quasi-peak	46 dBµV/m
960 MHz to 1 GHz	Quasi-peak	54 dBµV/m
1 GHz to 26 GHz	Peak	74 dBµV/m
1 to 40 GHz	Average	54 dBµV/m (*)

(\*) Radiated emissions which fall in the restricted bands, as defined in §15.205(a).

**Frequency range 30 MHz - 1 GHz:**

Spurious frequencies at less than 20 dB below the limit:

Spurious frequency (MHz)	Max Peak (dBµV/m)	QuasiPeak (dBµV/m)	Polarization	Limit (dBµV/m)
874.9912	28.86	25.13	H	46

Measurement Uncertainty (dB):  $\pm 5.03$

**Frequency range 1 - 26 GHz:**

Spurious frequencies at less than 20 dB below the limit:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Polarization	Detector
4786.26	43.44	V	Peak

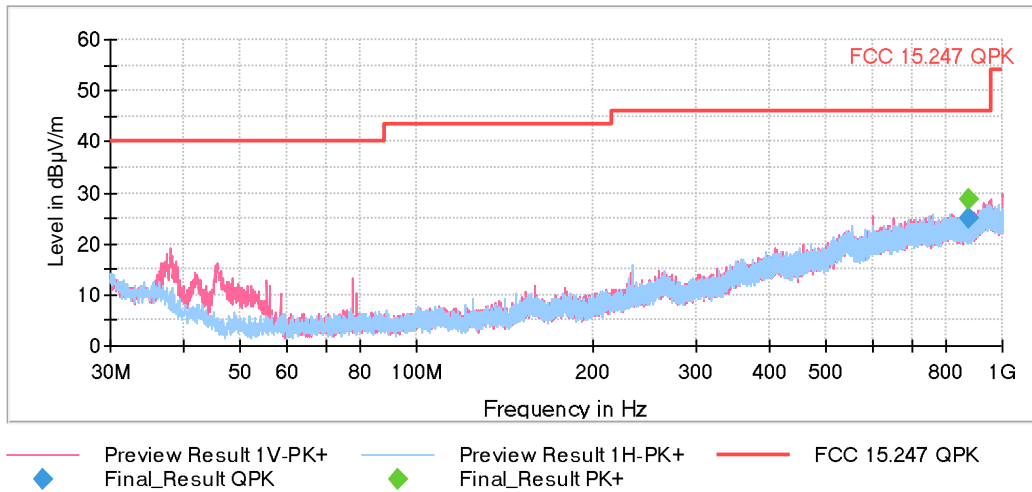
Measurement Uncertainty (dB): 1 GHz – 17 GHz  $\pm 4.32$   
 17 GHz – 26.5 GHz  $\pm 4.58$

Verdict: PASS

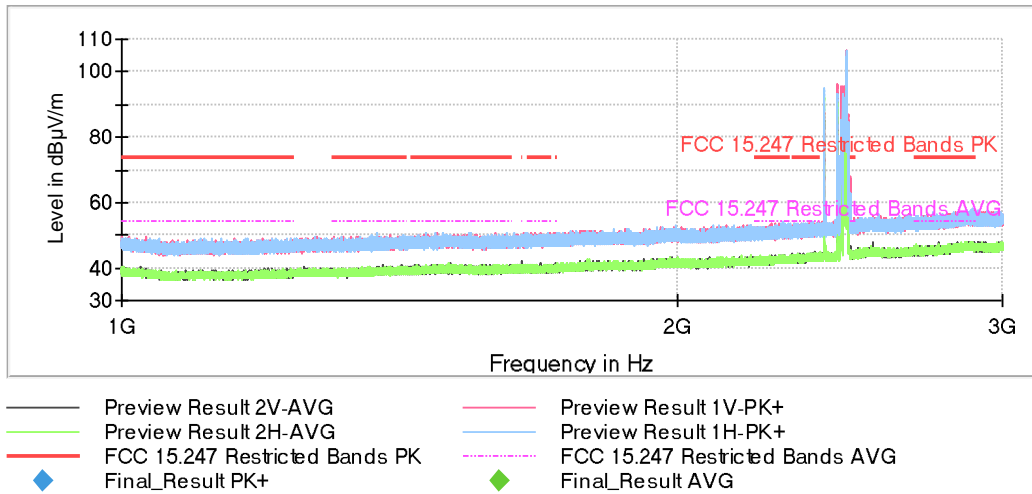
The setting for each range of frequency is indicated in the following tables:

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW44] 30 MHz - 1 GHz	30,312 kHz	PK+	100 kHz	1 s	30 dB
Receiver: [ESW44] 1 GHz - 3 GHz	30.769 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
Receiver: [ESW44] 3 GHz - 17 GHz	140 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
Receiver: [ESW44] 17 GHz - 26 GHz	300 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

**Frequency range 30 MHz - 1 GHz:**

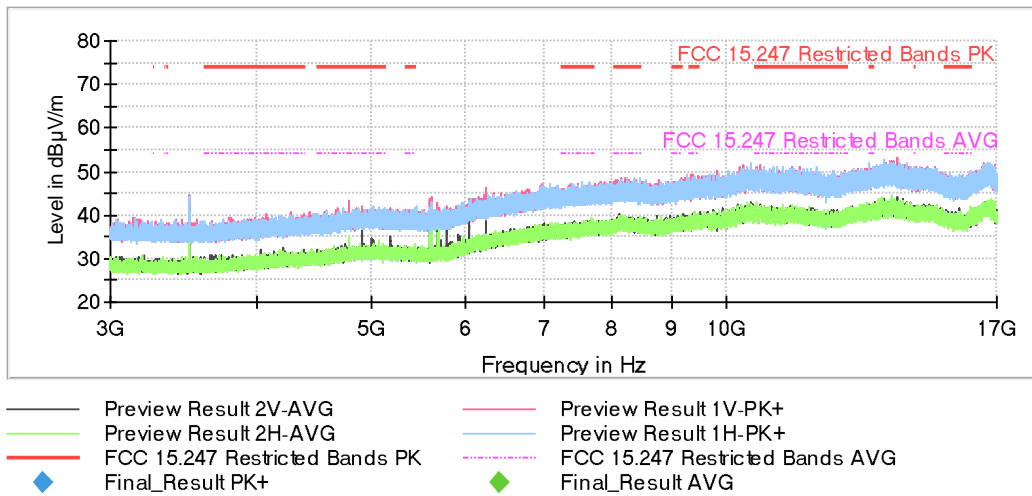


**Frequency range 1 - 3 GHz:**

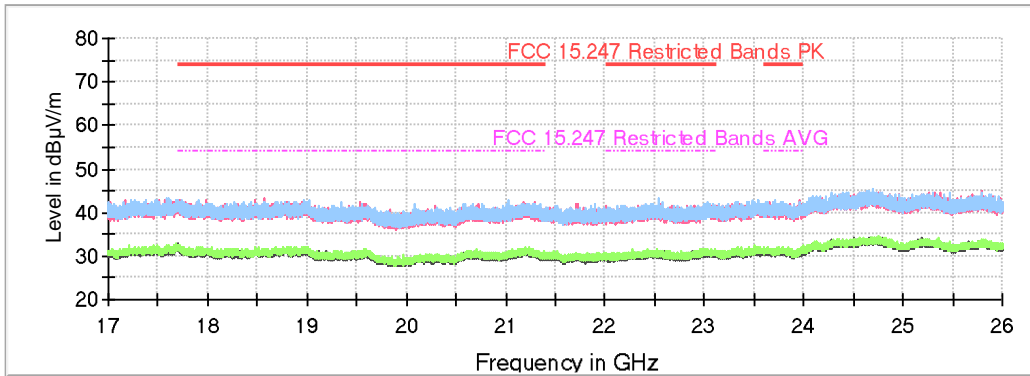


The peak above the highest limit are the carrier frequencies of BT EDR (Chipset #1), BT EDR (Chipset #2) and WLAN 2.4 GHz.

**Frequency range 3 - 17 GHz:**



**Frequency range 17 - 26 GHz:**



- |   |                                |   |                                 |
|---|--------------------------------|---|---------------------------------|
| — | Preview Result 2V-AVG          | — | Preview Result 1V-PK+           |
| — | Preview Result 2H-AVG          | — | Preview Result 1H-PK+           |
| — | FCC 15.247 Restricted Bands PK | — | FCC 15.247 Restricted Bands AVG |
| ◆ | Final_Result PK+               | ◆ | Final_Result AVG                |

• \* **Simultaneous transmission mode BT EDR Chipset #1, BT EDR Chipset #2, WLAN 5 GHz band U-NII-1**

Bluetooth EDR 8DPSK (Chipset #1):	Middle Channel (2441 MHz).
Bluetooth EDR PI4-DQPSK (Chipset #2):	Low Channel (2402 MHz).
WLAN 5 GHz 802.11 ax:	Low Channel (5210 MHz). BW: 80 MHz. MCS0. RU 26 Offset 36.

LIMIT: The spurious frequencies were measured at 3 meters. The limit of the test is determined by:

Frequency Range	Detector	Limit at 3m (dBµV/m)
30 MHz to 88 MHz	Quasi-peak	40 dBµV/m
88 MHz to 216 MHz	Quasi-peak	43.5 dBµV/m
216 MHz to 960 MHz	Quasi-peak	46 dBµV/m
960 MHz to 1 GHz	Quasi-peak	54 dBµV/m
1 GHz to 26 GHz	Peak	74 dBµV/m
26 to 40 GHz	Peak	68.23 dBµV/m (*) OR 74 dBµV/m (**)
1 to 40 GHz	Average	54 dBµV/m (**)

(\*) Radiated emissions which fall in the non-restricted bands.

(\*) Radiated emissions which fall in the restricted bands, as defined in §15.205(a).

**Frequency range 30 MHz - 1 GHz:**

Spurious frequencies at less than 20 dB below the limit:

Spurious frequency (MHz)	Max Peak (dBµV/m)	QuasiPeak (dBµV/m)	Polarization	Limit (dBµV/m)
38.0025	20.52	17.31	V	40
49.2484	20.54	17.59	V	40
599.9962	29.12	26.43	V	46
874.9912	31.62	28.14	H	46

Measurement Uncertainty (dB):  $\leq \pm 5.03$

**Frequency range 1 - 40 GHz:**

Spurious frequencies at less than 20 dB below the limit:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Polarization	Detector
1199.6000	39.50	V	Peak
2807.3000	48.79	H	Peak
2845.6000	46.39	H	Peak
4804.4000	52.80	H	Peak
4882.6000	53.56	V	Peak

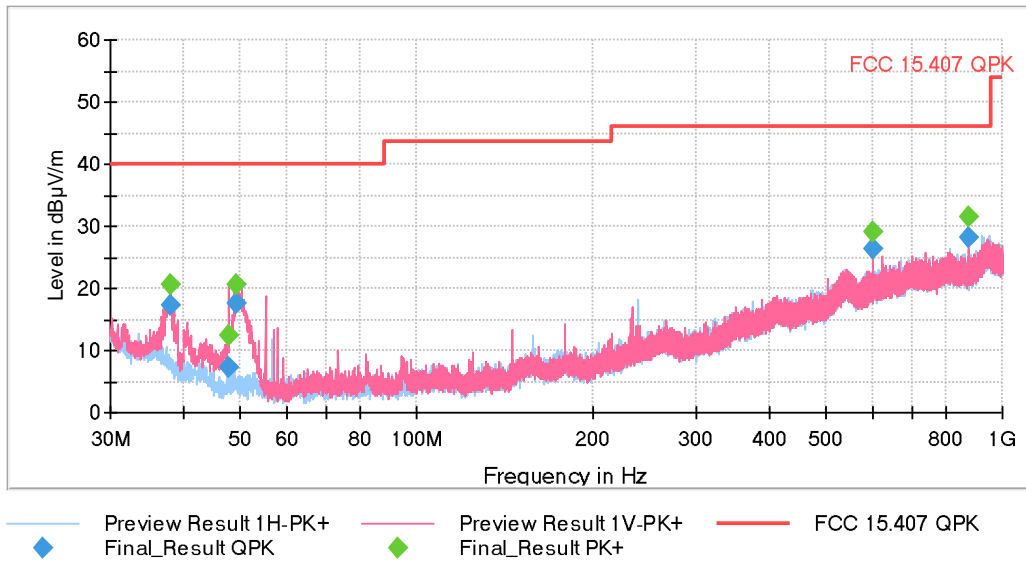
Measurement Uncertainty (dB): 1 GHz – 17 GHz  $\leq \pm 4.32$   
 17 GHz – 26.5 GHz  $\leq \pm 4.58$   
 26.5 GHz – 40 GHz  $\leq \pm 4.75$

Verdict: PASS

The setting for each range of frequency is indicated in the following tables:

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW44] 30 MHz - 1 GHz	30,312 kHz	PK+	100 kHz	1 s	30 dB
Receiver: [ESW44] 1 GHz – 6.5 GHz	100 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
Receiver: [ESW44] 6.5 GHz - 17 GHz	105 kHz	PK+ ; AVG	1 MHz	1 s	30 dB
Receiver: [ESW44] 17 GHz - 26 GHz	300 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
Receiver: [ESW44] 26 GHz - 40 GHz	766 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

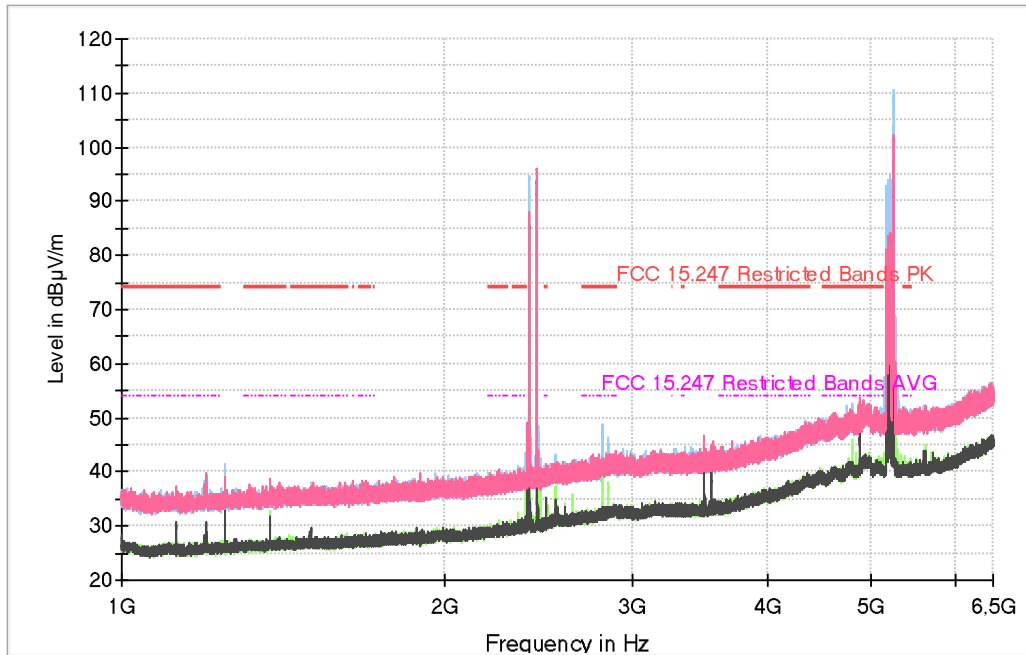
**Frequency range 30 MHz - 1 GHz:**





**Frequency range 1 – 6.5 GHz:**

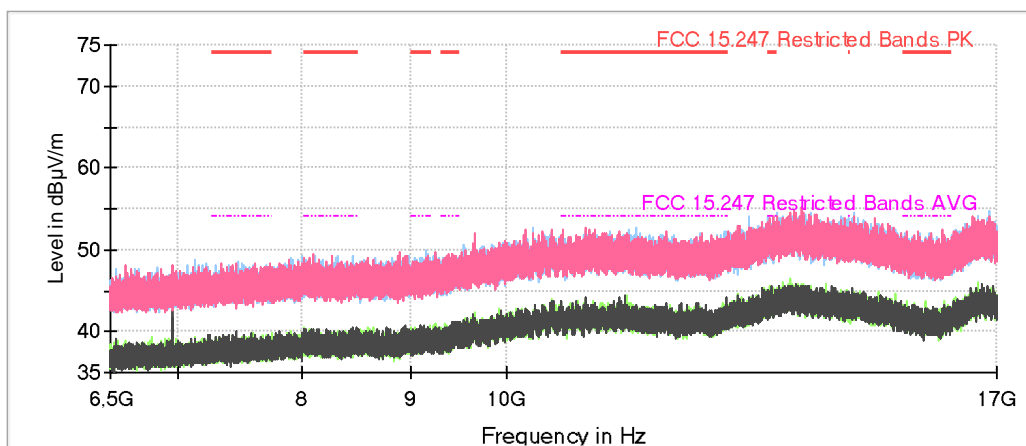
Full Spectrum



- Preview Result 2H-AVG
- Preview Result 2V-AVG
- - - FCC 15.247 Restricted Bands AVG
- ◆ Final\_Result AVG
- Preview Result 1H-PK+
- Preview Result 1V-PK+
- ◆ Final\_Result PK+
- - - FCC 15.247 Restricted Bands PK

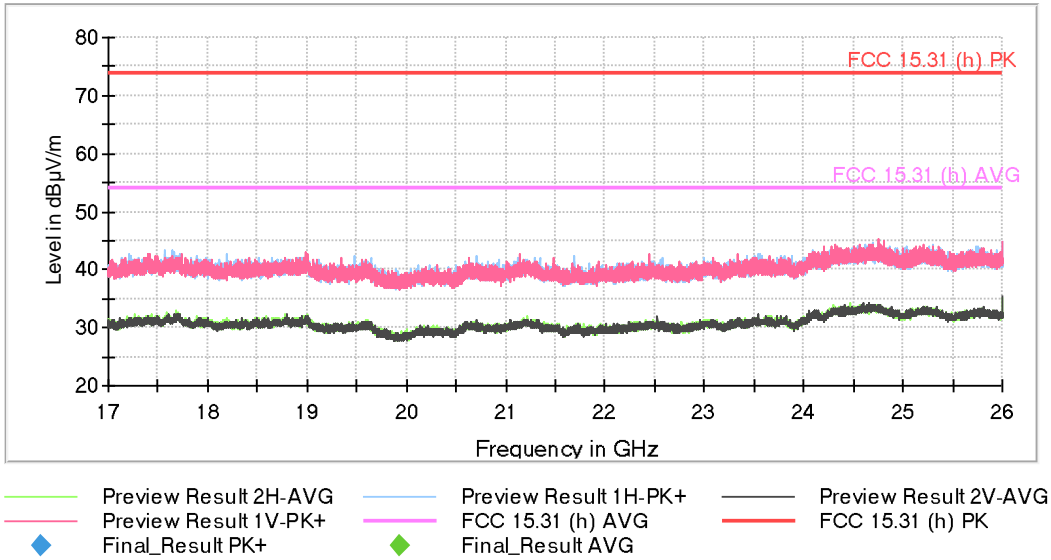
The peaks above the highest limit are the carrier frequencies of BT EDR (Chipset #1), BT EDR (Chipset #2) and WLAN 5 GHz.

**Frequency range 6.5 - 17 GHz:**

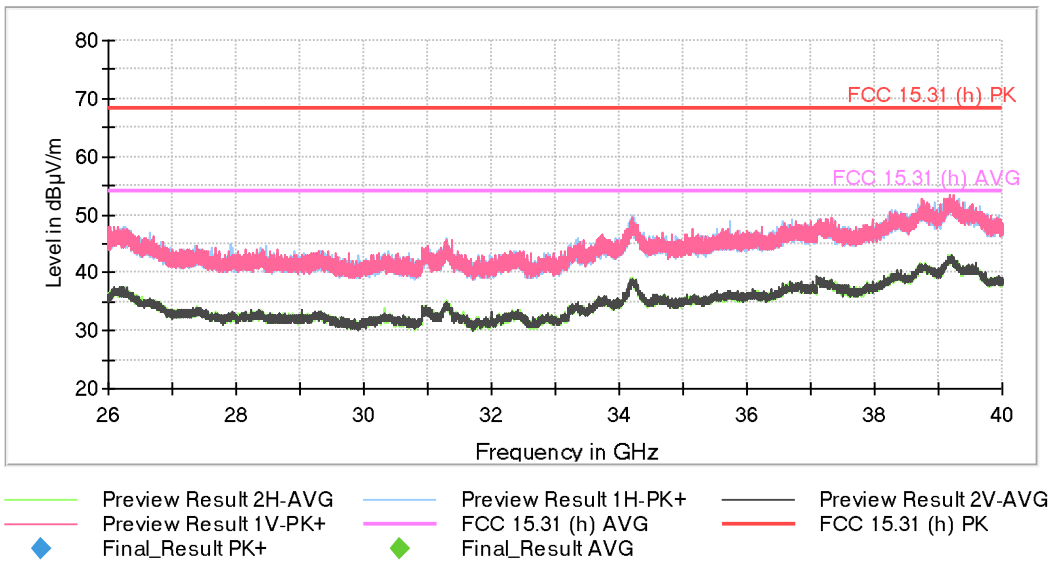


- Preview Result 2H-AVG
- Preview Result 2V-AVG
- ◆ Final\_Result PK+
- - - FCC 15.247 Restricted Bands PK
- Preview Result 1H-PK+
- Preview Result 1V-PK+
- ◆ Final\_Result AVG
- - - FCC 15.247 Restricted Bands AVG

**Frequency range 17 - 26 GHz:**



**Frequency range 26 - 40 GHz:**



• \* **Simultaneous transmission mode Bluetooth EDR Chipset #1, Bluetooth EDR Chipset #2, WLAN 5 GHz band U-NII-3:**

Bluetooth EDR 8DPSK (Chipset #1):	Middle Channel (2441 MHz).
Bluetooth EDR PI4-DQPSK (Chipset #2):	Low Channel (2402 MHz).
WLAN 5 GHz 802.11 ax:	High Channel (5745 MHz). BW: 20 MHz. MCS0. RU 26 Offset 0.

LIMIT: The spurious frequencies were measured at 3 meters. The limit of the test is determined by:

Frequency Range	Detector	Limit at 3m (dBµV/m)
30 MHz to 88 MHz	Quasi-peak	40 dBµV/m
88 MHz to 216 MHz	Quasi-peak	43.5 dBµV/m
216 MHz to 960 MHz	Quasi-peak	46 dBµV/m
960 MHz to 1 GHz	Quasi-peak	54 dBµV/m
1 GHz to 26 GHz	Peak	74 dBµV/m
26 to 40 GHz	Peak	68.23 dBµV/m (*) or 74 dBµV/m (**)
1 to 40 GHz	Average	54 dBµV/m (**)

(\*) Radiated emissions which fall in the non-restricted bands.

(\*\*) Radiated emissions which fall in the restricted bands, as defined in §15.205(a).

**Frequency range 30 MHz - 1 GHz:**

No spurious frequencies found at less than 20 dB below the limit.

Measurement Uncertainty (dB):  $\leq \pm 5.03$

**Frequency range 1 - 40 GHz:**

Spurious frequencies at less than 20 dB below the limit:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Polarization	Detector
1375.5000	39.88	H	Peak
4881.1000	53.22	V	Peak

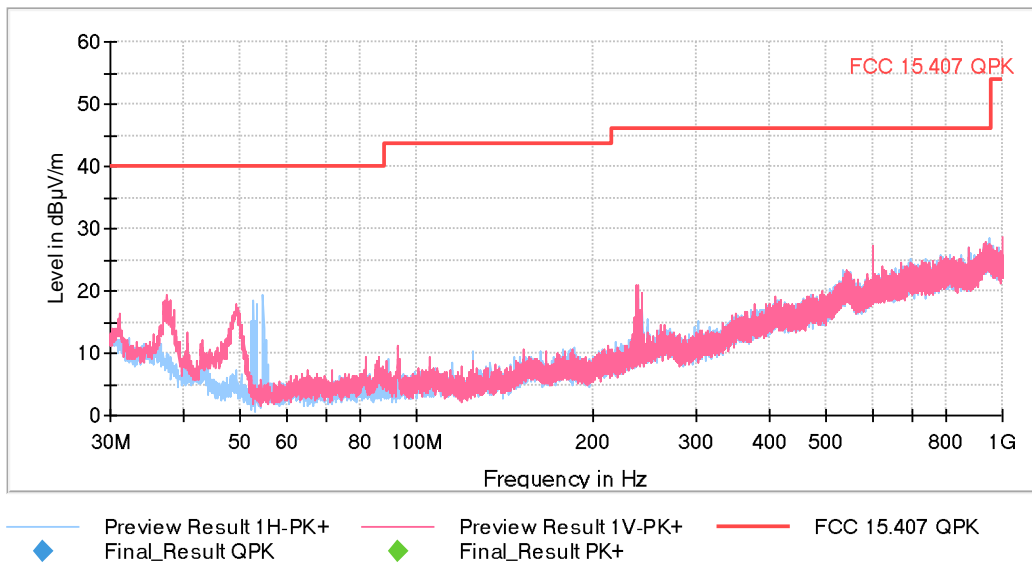
Measurement Uncertainty (dB): 1 GHz – 17 GHz  $\leq \pm 4.32$   
 17 GHz – 26.5 GHz  $\leq \pm 4.58$   
 26.5 GHz – 40 GHz  $\leq \pm 4.75$

Verdict: PASS

The setting for each range of frequency is indicated in the following tables:

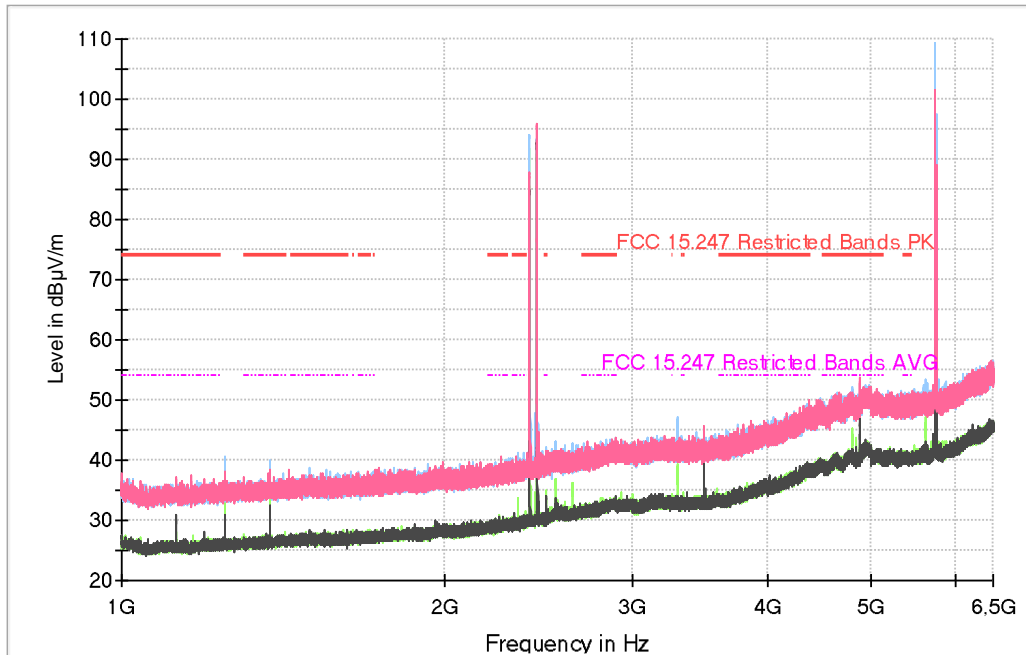
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW44] 30 MHz - 1 GHz	30,312 kHz	PK+	100 kHz	1 s	30 dB
Receiver: [ESW44] 1 GHz – 6.5 GHz	100 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
Receiver: [ESW44] 6.5 GHz - 17 GHz	105 kHz	PK+ ; AVG	1 MHz	1 s	30 dB
Receiver: [ESW44] 17 GHz - 26 GHz	300 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
Receiver: [ESW44] 26 GHz - 40 GHz	766 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

**Frequency range 30 MHz - 1 GHz:**



**Frequency range 1 – 6.5 GHz:**

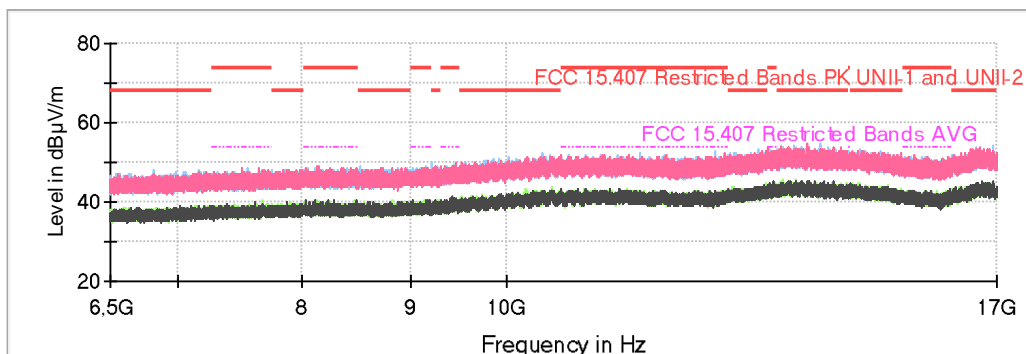
Full Spectrum



- Preview Result 2H-AVG
- Preview Result 1H-PK+
- Preview Result 2V-AVG
- Preview Result 1V-PK+
- - - FCC 15.247 Restricted Bands PK
- - - FCC 15.247 Restricted Bands AVG
- ◆ Final\_Result PK+
- ◆ Final\_Result AVG

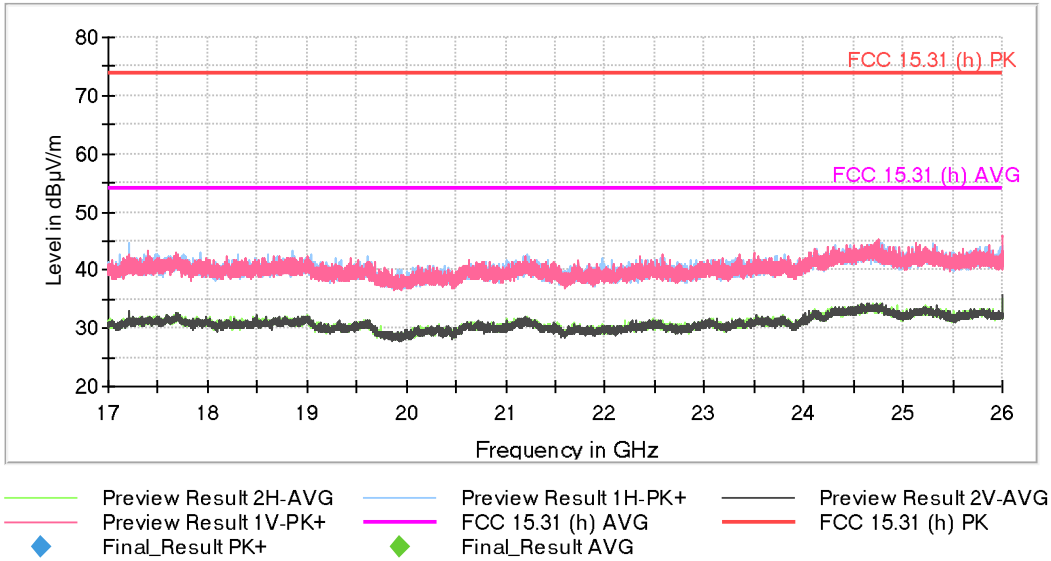
The peak above the highest limit are the carrier frequencies of BT EDR (Chipset #1), BT EDR (Chipset #2) and WLAN 5 GHz.

**Frequency range 6.5 - 17 GHz:**



- Preview Result 2H-AVG
- Preview Result 1H-PK+
- Preview Result 2V-AVG
- Preview Result 1V-PK+
- - - FCC 15.407 Restricted Bands PK UNII-1 and UNII-2
- - - FCC 15.407 Restricted Bands AVG
- ◆ Final\_Result PK+
- ◆ Final\_Result AVG

**Frequency range 17 - 26 GHz:**



**Frequency range 26 - 40 GHz:**

