



EMC Test Report

for

DOT 2256 B48B41B25B66 (KRY 901 537/1) and DOT 2266 B48B41B25B66 (KRY 901 537/2)

Tested to: FCC Part 15 Subpart B
FCC Part 24 (Section 24.238(a))
FCC Part 27 (Section - 27.53(h))
FCC Part 96 (Section – 96.41 e) 2))

Test Result summary

FCC Section	Description	Specification/Method	Pass or Fail	Results in section
15.109	Radiated Emissions (RE)	FCC Part 15 / ICES 003 / ANSI C63.4	Pass	3.2
15.107	Conducted Emissions (CE) for AC Power	FCC Part 15 / ICES 003 / ANSI C63.4	Not applicable	
24.238(a)	Out of band Emissions (RE)	FCC Part 24 / ANSI C63.26	Pass	3.2
27.53(h)	Transmitter Spurious Emissions (RE)	FCC Part 27 / ANSI C63.26	Pass	3.2
96.41 e) 2)	Additional protection levels (RE)	FCC Part 96 / ANSI C63.26	Pass	3.2

Document number: 7169012146-TR-EMC-01-01-F15

Release date: 18 January, 2023

Prepared for: Ericsson Canada



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Release control record

This document is based on document template KG000347-TR-EMC-08-03.

Issue	Reason for change	Date released
01	initial release	18 January, 2023


Approvals

Function	Name	Job title	Signature
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1. Executive summary

This document reports the Electromagnetic Compatibility (EMC) testing performed on the product called DOT 2256 B48B41B25B66 (KRY 901 537/1) and DOT 2266 B48B41B25B66 (KRY 901 537/2) for Ericsson Canada per project number 7169012146. The objective of the test activities is to evaluate compliance of the product to following EMC regulatory standards.

The DOT 2256 B48B41B25B66 (KRY 901 537/1) and DOT 2266 B48B41B25B66 (KRY 901 537/2) are verified to comply with the Emissions requirements of these standards:

- FCC Part 15 Subpart B [5] (Class B)
- FCC Part 24 [7] (Emissions Limitations for broadband PCS equipment, Section 24.238(a))
- FCC Part 27 [8] (Digital Base Stations, Section - 27.53(h))
- FCC Part 96 [9] (Additional protection levels, Section - 96.41e) 2)

Information about the test result summary and, the equipment under test (EUT) is in the sections:

- [Compliance summary](#)
- [Details of the equipment under test](#)
- [Detailed test results of Emissions](#)



1.1 Compliance summary

The test results in this report apply only to the tested components that are identified in the section [Assessed hardware](#).

The following table summarizes the EMC test results for the test cases performed on the DOT 2256 B48B41B25B66 (KRY 901 537/1) and DOT 2266 B48B41B25B66 (KRY 901 537/2).

Table 1: Summary of test results for the USA; FCC Part 15 subpart B

FCC Section	Description	Specification/Method	Pass or Fail	Results in section
15.109	Radiated Emissions (RE)	FCC Part 15/ANSI C63.4	Pass	3.2
15.107	Conducted Emissions (CE) for AC Power	FCC Part 15/ANSI C63.4	Not applicable EUT is POE powered	

Table 2: Summary of test results for the USA; FCC Part 24, Section 24.238 (a)

FCC Section	Description	Specification/Method	Pass or Fail	Results in section
24.238 (a)	Emissions Limitations for Broadband PCS equipment – Out of band emissions	FCC Part 24/ ANSI C63.26	Pass	3.2

Table 3: Summary of test results for the USA; FCC Part 27 subpart C

FCC Section	Description	Specification/Method	Pass or Fail	Results in section
27.53(h)	AWS emission limits	FCC Part 27/ ANSI C63.26	Pass	3.2

Table 4: Summary of test results for the USA; FCC Part 96.41 e) 2)

FCC Section	Description	Specification/Method	Pass or Fail	Results in section
96.41 e) 2)	Additional protection levels - CBSD	FCC Part 96/ ANSI C63.26	Pass	3.2

2. Details of the equipment under test

This section describes the equipment under test (EUT).

2.1 Assessed hardware

The following table indicates the hardware components that were assessed during this test program.

Table 5: Assessed hardware

Hardware component ¹	Part number
DOT 2256 B48B41B25B66 - Equipped with 8 internal antennas	KRY 901 537/1
DOT 2266 B48B41B25B66 - Equipped with 8 external antenna ports	KRY 901 537/2
Table Notes	
1. The 2 units above use the same pcb and hardware. The only difference between the units is the presence of the internal/external antennas. Therefore all EMC tests were done only on the external antenna ports variant.	

2.2 Product overview

The product trade name is DOT 2256 B48B41B25B66 (KRY 901 537/1) and DOT 2266 B48B41B25B66 (KRY 901 537/2). The DOT 2256 & DOT 2266 products are indoor wireless telecommunication products. They transmit and receives the cellular signals for 4G and 5G wireless systems; and operates from POE (56 VDC). This DOTs come in 2 variants as mentioned above in [Table 5: Assessed hardware](#).

Figure 1: The EUT with External antenna (DOT 2266)

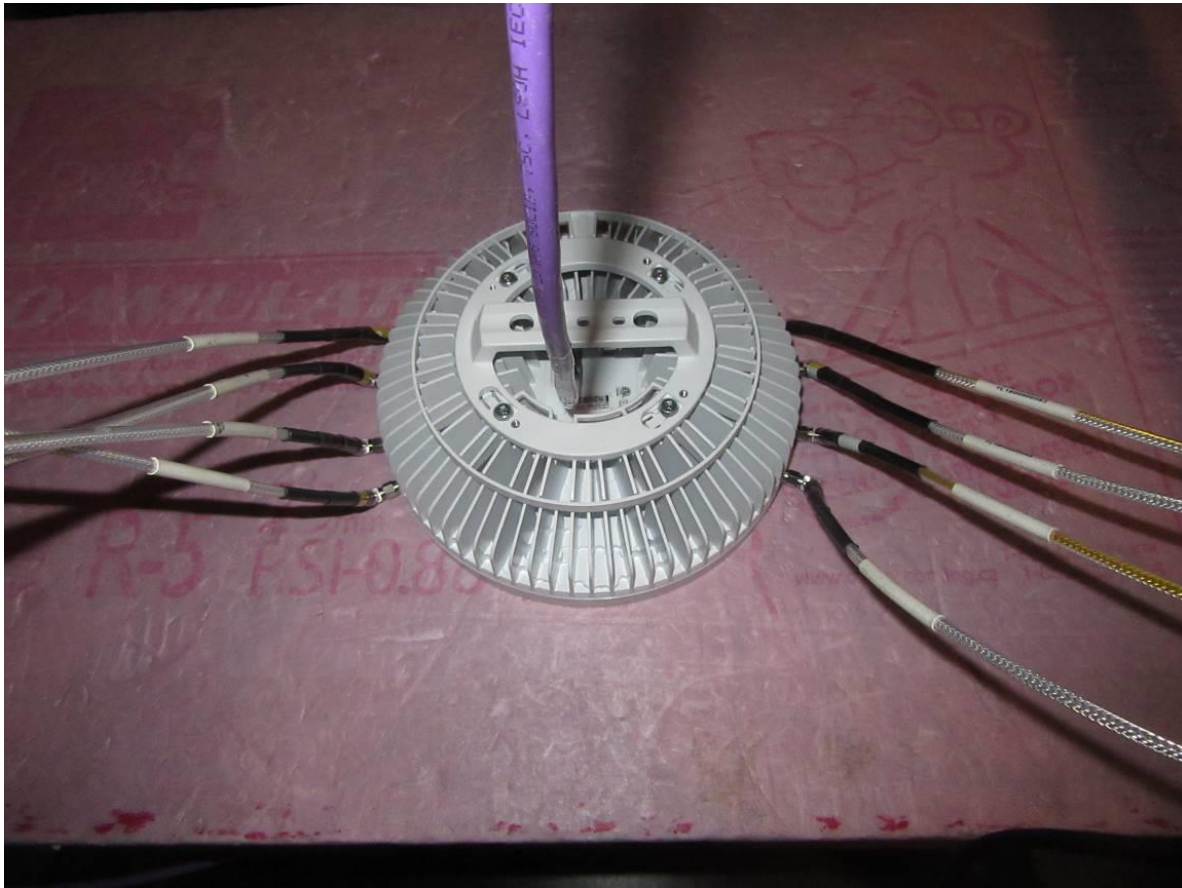


Table 6: Product specifications – Tested DOT 2266

Product Detail – Tested DOT 2266	
Product data:	DOT 2266 B48B41B25B66
Product:	Quadband Dot, 2T2R+2T2R+2T2R+2T2R
P/N:	KRY 901 537/2
HW Rev	R1B
Nominal Voltage:	56Vdc (CAT6A POE or Hybrid cable)
Operating Temperature:	+5°C to +40°C
Rating	42.5-57 Vdc, Max 1800 mA
Bands	B48, B41, B25, B66
Antennas	2T2R B48, 2T2R B41, 2T2R B25, 2T2R B66
Output Power per band	B48: 26 dBm per branch
	B41: 26 dBm per branch
	B25: 23 dBm per branch
	B66: 23 dBm per branch



Product Detail – Tested DOT 2266	
Maximum IBW	B48: 150 MHz (full band)
	B41: 194 MHz (full band)
	B25: 65 MHz (full band)
	B66: 90/70 MHz (DL/UL) (full band)
Contiguous / Non-contiguous	Contiguous & Non-Contiguous
Single RAT (SRO) support	B48: NR, LTE (TDD)
	B41: NR, LTE (TDD)
	B25: NR, LTE (CAT-M, NB-IoT IBGB) (FDD)
	B66: NR, LTE (CAT-M, NB-IoT IBGB) (FDD)
Mixed RAT (MRO) support	B48: NR+LTE (TDD)
	B41: NR+LTE (TDD)
	B25: NR+LTE, ESS+NBloT (FDD)
Channel Bandwidth B48:	B66, NR+LTE, ESS+NBloT (FDD)
	NR: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100 MHz (SCS 30 kHz)
Channel Bandwidth B41:	LTE: 10, 20 MHz (SCS 30 kHz)
	NR: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100 MHz (SCS 30 kHz)
Channel Bandwidth B25/B66:	LTE: 5, 10, 15, 20 MHz (SCS 30 kHz)
	NR: 5, 10, 15, 20 MHz (SCS 15 kHz) / 25, 30, 40MHz
Channel Raster B48/B41:	LTE: 5, 10, 15, 20 MHz (SCS 15 kHz)
Channel Raster B25/B66:	30 kHz
Nominal O/P per Antenna Port B48/B41:	100 kHz
	Single Carrier: 1 x 251 mW (24 dBm)
	Multi-Carrier: 2 x 200 mW (23 dBm)
	Multi-Carrier: 3 x 133.3 mW (21.24 dBm)
	Multi-Carrier: 4 x 100 mW (20 dBm)
	Multi-Carrier: 5 x 80 mW (19 dBm)
Nominal O/P per Antenna Port B25/B66:	Multi-Carrier: 6 x 66.7 mW (18.23 dBm)
	Single Carrier: 1 x 200 mW (23 dBm)
	Multi-Carrier: 2 x 100 mW (20 dBm)
	Multi-Carrier: 3 x 66.7 mW (18.24 dBm)
	Multi-Carrier: 4 x 50 mW (17 dBm)
	Multi-Carrier: 5 x 40 mW (16 dBm)
Max carriers / Branch	Multi-Carrier: 6 x 33.3 mW (15.23 dBm)
	Max 6 carriers dual Xenon IRU Max 3 carriers single Xenon IRU
CPRI line rate	10.1 Gbps
Compatible IRU	IRU 1648/1649 & 8848
Modulation:	NR/LTE: QPSK, 16QAM, 64QAM, 256QAM
dRDI Interface:	Digital, dRDI compression rev = ATC
SFP Interface:	Optical SFP+, 10.1 Gbps
Mounting	ceiling or wall



The configurations of the tested DOT 2266 B48B41B25B66 (KRY 901 537/2) are shown in the section [Configurations of the EUT](#).



2.3 Clocks, oscillators, or switching frequencies

The maximum clock frequency used to determine the Radiated Emissions (RE) frequency range to test is 3.98 GHz. [Table 7](#) lists all the clock sources (for example, discrete crystals, VCXOs, and DC/DC converter switching frequencies) used in the EUT. The maximum frequency (40 GHz) used for the Radiated Emissions (RE) frequency range was obtained from the 10th harmonic of the highest transmit frequency (3.98 GHz).

Table 7: EUT fundamental frequencies

Fundamental frequencies (MHz)
3.84, 25, 50, 156.25, 161, 245.76, 245.76

2.4 Product port definition and EUT cable information

[Table 8](#) identifies all the cables and ports on the EUT. The Environment of the cables is indoor.

Table 8: System port definition

Port Name	Port Description	Port Type	Interface Detail	Plug-Cable Type
RJ45	Digital RDI / DC Power Input	Telecom / DC Power	ethernet	RJ-45, CAT6A
SFP+	Digital RDI, Optical SFP+	Optical SFP	optical fiber, LC	SFP+, RDH 102 65/2,
3A, 3B	RF to antenna B48	Antenna	RF	SMA, Coax >3m
4A, 4B	RF to antenna B41	Antenna	RF	SMA, Coax >3m
2A, 2B	RF to antenna B25	Antenna	RF	SMA, Coax >3m
1A, 1B	RF to antenna B66	Antenna	RF	SMA, Coax >3m

2.5 Configurations of the EUT

Two EUT configurations were used for Radiated Emissions test. [Figure 2](#) and [Figure 3](#) show the configurations of the EUT.

Figure 2: Test configuration 1 (DOT 2266 with IRU 1648)

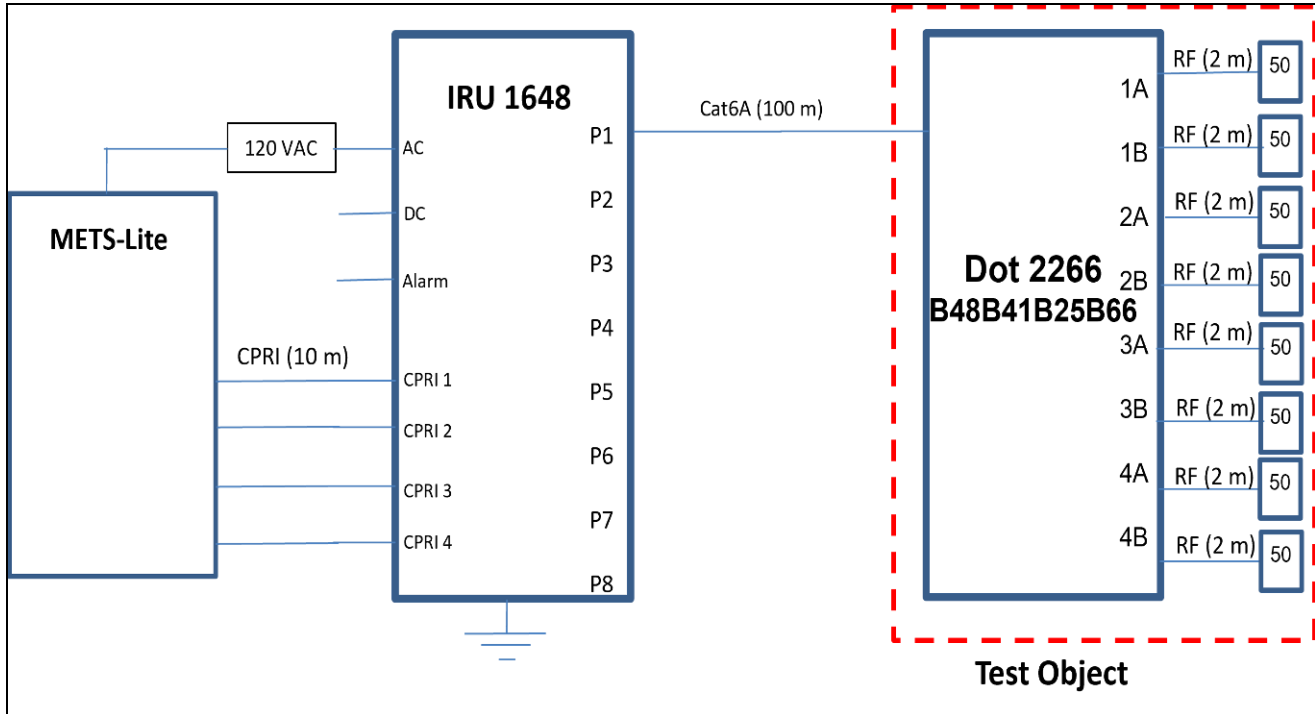
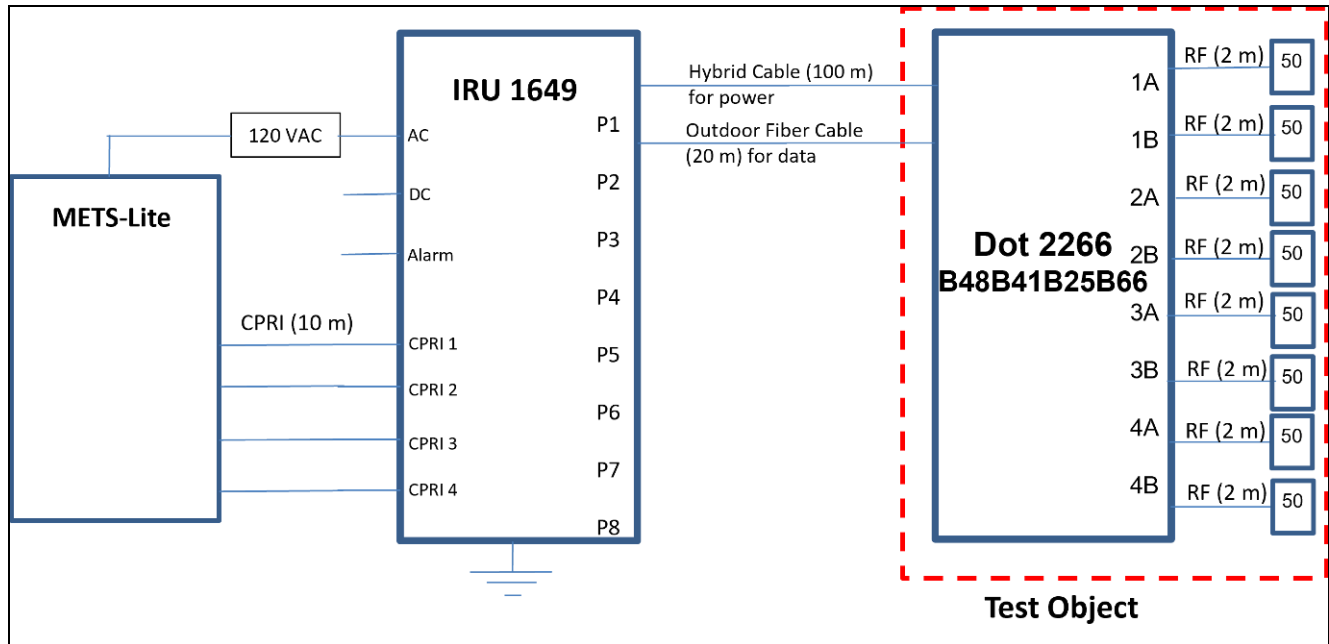


Figure 3: Test configuration 2 (DOT 2266 with IRU 1649)



Following RAT/carrier configurations were tested during this Radiated Emissions evaluations.

- Radiated Emissions - Single RAT / Single Carrier Configurations (IRU 1648)
- Radiated Emissions - Single RAT / Multi Carrier Configs - Contiguous (IRU 1648)
- Radiated Emissions - Multiple RAT/Multi Carrier Configs-contiguous (IRU 1648)
- Radiated Emissions Single RAT / Single Carrier Configs (IRU 1649)
- Radiated Emissions Single RAT / Multi Carriers - Non-Contiguous Configs (IRU 1649)
- Radiated Emissions Multi RAT/Multi Carriers - Non-Contiguous Configs (IRU 1649)



2.5.1 Radiated Emissions - Single RAT / Single Carrier Configurations (IRU 1648)

2.5.1.1 Single RAT / Single Carrier Configurations (IRU 1648) - NR

Single RAT / Single Carrier – NR TDD B48/B41 – Middle (IRU 1648)			
B48 PORT (3A, 3B)		B41 PORT (4A, 4B)	
B48 NR TDD Carrier BWs (Center frequency 3625 MHz)		B41 NR TDD Carrier BWs (Center frequency 2593 MHz)	
10 MHz	60 MHz	10 MHz	60 MHz
20 MHz	70 MHz	20 MHz	70 MHz
30 MHz	80 MHz	30 MHz	80 MHz
40 MHz	90 MHz	40 MHz	90 MHz
50 MHz	100 MHz	50 MHz	100 MHz

Note: Radiated Emissions measurements were compared between all the above carrier setups. 20 MHz NR in B48, 10 MHz NR in B41 were found to be the worst cases among the above-mentioned carrier setups to perform full scans.

Full scans included the worst case from B25 and B66 previously evaluated in DOT 4465 B77D B25 B66, See TUV Report 7169011961-TR-EMC-01-01-F15 for more detail.

Full Scans			
B48 PORT (3A, 3B)	B41 PORT (4A, 4B)	B25/B66 (2A, 2B, 1A, 1B) [Worst Case]	
B48 20 MHz NR Carriers (Center frequencies)	B41 10 MHz NR Carriers (Center frequencies)	B25 5 MHz NR TDD Carriers (Center freq.)	B66 5 MHz NR TDD Carriers (Center freq.)
3625 MHz	2593 MHz	1962.5 MHz	2155 MHz



2.5.1.2 Single RAT / Single Carrier Configurations (IRU 1648) – LTE

Single RAT / Single Carrier – LTE TDD B48/B41 – Middle (IRU 1648)			
B48 PORT (3A, 3B)		B41 PORT (4A, 4B)	
B48 LTE TDD Carrier BWs (Center frequency 3625 MHz)		B41 LTE TDD Carrier BWs (Center frequency 2593 MHz)	
10 MHz	20 MHz	5 MHz	15 MHz
		10 MHz	20 MHz

Note: Radiated Emissions measurements were compared between all the above carrier setups. 20 MHz LTE in B48, 5 MHz LTE in B41 were found to be the worst cases among the above-mentioned carrier setups to perform full scans.

Full scans included the worst case from B25 and B66 previously evaluated in DOT 4465 B77D B25 B66; See TUV Report 7169011961-TR-EMC-01-01-F15 for more detail.

Full Scans			
B48 PORT (3A, 3B)	B41 PORT (4A, 4B)	B25/B66 (2A, 2B, 1A, 1B) [Worst Case]	
B48 20 MHz LTE Carriers (Center frequencies)	B41 5 MHz LTE Carriers (Center frequencies)	B25 5 MHz NR TDD Carriers (Center freq.)	B66 5 MHz NR TDD Carriers (Center freq.)
3625 MHz	2593 MHz	1962.5 MHz	2155 MHz



2.5.1.3 Single RAT / Single Carrier Configurations (IRU 1648) – worst case

Single RAT / Single Carrier – NR TDD B48/B41 and NR TDD (B25/B66) – Bottom / TOP (IRU 1648)			
B48 PORT (3A, 3B)	B41 PORT (4A, 4B)	B25/B66 (2A, 2B, 1A, 1B) [Worst Case]	
B48 20 MHz NR Carriers (Center frequencies)	B41 5 MHz LTE Carriers (Center frequencies)	B25 5 MHz NR TDD Carriers (Center freq.)	B66 5 MHz NR TDD Carriers (Center freq.)
3560 MHz	2498.5 MHz	1962.5 MHz	2155 MHz
3690 MHz	2687.5 MHz	1962.5 MHz	2155 MHz

Note: The overall Single RAT, Single Carrier worst case was deemed to be: 20 MHz NR in B48, 5 MHz LTE in B41, and 5 MHz NR TDD carriers in B25 and B66, which was therefore the preferred configuration for testing the above Bottom/Top Single RAT, Single Carrier cases for full scans.

Recorded data in the 30 MHz - 1 GHz and 18 GHz - 40 GHz ranges show that they do not contain any channel specific emissions in the Single RAT, Single Carrier, Middle Channel test case. Therefore, 1 GHz - 18 GHz RE sweep was deemed to be sufficient for demonstrating compliance in the Single RAT, Single Carrier, Bottom/Top Channel test case.



2.5.2 Radiated Emissions - Single RAT / Multi Carrier Configs - Contiguous (IRU 1648)

Single RAT / Multiple Carriers – NR TDD (B48); LTE (B41) and NR (B25/B66) – 2 and 6 Carriers, Contiguous (IRU 1648)			
B48 PORT (3A, 3B)	B41 PORT (4A, 4B)	B25/B66 (2A, 2B, 1A, 1B) [Worst Case]	
B48 10 MHz 6 NR Carriers (Center frequencies)	B41 5 MHz 6 LTE Carriers (Center frequencies)	B25 5 MHz NR TDD Carriers (Center freq.)	B66 5 MHz NR TDD Carriers (Center freq.)
3600 MHz 3610 MHz 3620 MHz 3630 MHz 3640 MHz 3650 MHz	2580.5 MHz 2585.5 MHz 2590.5 MHz 2600.5 MHz 2605.5 MHz 2610.5 MHz	1962.5 MHz	2155 MHz
B48 20 MHz 2 NR Carriers (Center frequencies)	B41 5 MHz 2 LTE Carriers (Center frequencies)	B25 5 MHz NR TDD Carriers (Center freq.)	B66 5 MHz NR TDD Carriers (Center freq.)
3615 MHz 3635 MHz	2590.5 MHz 2595.5 MHz	1962.5 MHz	2155 MHz

Note: The overall Single RAT, Multiple Carriers worst case was deemed to be: two 20 MHz NR carriers in B48, two 5 MHz LTE carriers in B41, and 5 MHz NR TDD carriers in B25 and B66, for which full scans were performed.

Recorded data in the 30 MHz - 1 GHz and 18 GHz - 40 GHz ranges show that they do not contain any channel specific emissions in the Multiple RATs, Multiple Carriers test case. Therefore, 1 GHz - 18 GHz RE sweep was deemed to be sufficient for demonstrating compliance in the Single RAT, Multiple Carriers test case.



2.5.3 Radiated Emissions - Multiple RAT/Multi Carrier Configs-contiguous (IRU 1648)

Multiple RATs / Multiple Carriers – NR TDD/LTE (B48); NR TDD/LTE (B41) and NR (B25/B66) – 2 and 6 Carriers, Contiguous (IRU 1648)			
B48 PORT (3A, 3B)	B41 PORT (4A, 4B)	B25/B66 (2A, 2B, 1A, 1B) [Worst Case]	
B48 10 MHz 3 NR/10 MHz 3 LTE Carriers (Center frequencies)	B41 10 MHz 3 NR/5 MHz 3 LTE Carriers (Center frequencies)	B25 5 MHz NR TDD Carriers (Center freq.)	B66 5 MHz NR TDD Carriers (Center freq.)
NR 3630 MHz 3640 MHz 3650 MHz LTE 3600 MHz 3610 MHz 3620 MHz	NR 2598 MHz 2608 MHz 2618 MHz LTE 2580.5 MHz 2585.5 MHz 2590.5 MHz	1962.5 MHz	2155 MHz
B48 20 MHz 1 NR/20 MHz 1 LTE Carriers (Center frequencies)	B41 10MHz 1 NR/5 MHz 1 LTE Carriers (Center frequencies)	B25 5 MHz NR TDD Carriers (Center freq.)	B66 5 MHz NR TDD Carriers (Center freq.)
NR 3635 MHz LTE 3615 MHz	NR 2598 MHz LTE 2590.5 MHz	1962.5 MHz	2155 MHz

Note: The overall Multiple RAT, Multiple Carriers worst case was deemed to be: one 20 MHz NR carrier and one 20 MHz LTE carrier in B48, one 10 MHz NR carrier and one 5 MHz LTE carrier in B41, and 5 MHz NR TDD carriers in B25 and B66, for which full scans were performed.



2.5.4 Radiated Emissions Single RAT / Single Carrier Configs (IRU 1649)

Single RAT / Single Carrier – NR TDD B48/B41 and NR (B25/B66) – Middle (IRU 1649)			
B48 PORT (3A, 3B)	B41 PORT (4A, 4B)	B25/B66 (2A, 2B, 1A, 1B) [Worst Case]	
B48 20 MHz NR Carriers (Center frequencies)	B41 5 MHz LTE Carriers (Center frequencies)	B25 5 MHz NR TDD Carriers (Center freq.)	B66 5 MHz NR TDD Carriers (Center freq.)
3625 MHz	2593 MHz	1962.5 MHz	2155 MHz

Note: The overall Single RAT, Single Carrier worst case using IRU 1648 was deemed to be: 20 MHz NR in B48, 5 MHz LTE in B41, and 5 MHz NR TDD in B25 and B66, which was therefore the preferred configuration for performing a full scan for Single RAT, Single Carrier case with IRU 1649.



2.5.5 Radiated Emissions Single RAT / Multi Carriers - Non-Contiguous Configs (IRU 1649)

Single RAT / Multiple Carriers – NR TDD (B48); LTE (B41) and NR (B25/B66) – 2 and 6 Carriers, Non-Contiguous (IRU 1649)			
B48 PORT (3A, 3B)	B41 PORT (4A, 4B)	B25/B66 (2A, 2B, 1A, 1B) [Worst Case]	
B48 10 MHz 6 NR Carriers (Center frequencies)	B41 5 MHz 6 LTE Carriers (Center frequencies)	B25 5 MHz NR TDD Carriers (Center freq.)	B66 5 MHz NR TDD Carriers (Center freq.)
Bottom 3555 MHz 3565 MHz 3575 MHz Top 3675 MHz 3685 MHz 3695 MHz	Bottom 2508 MHz 2513 MHz 2518 MHz Top 2668 MHz 2673 MHz 2678 MHz	1962.5 MHz	2155 MHz
B48 20 MHz 2 NR Carriers (Center frequencies):	B41 5 MHz 2 LTE Carriers (Center frequencies):	B25 5 MHz NR TDD Carriers (Center freq.):	B66 5 MHz NR TDD Carriers (Center freq.):
B48 150 MHz IBW Software load			
Bottom 3560 MHz Top 3690 MHz	Bottom 2508 MHz Top 2678 MHz	1962.5 MHz	2155 MHz
Default Software load			
Bottom 3610 MHz Top 3640 MHz	Bottom 2498.5 MHz Top 2687.5 MHz	1962.5 MHz	2155 MHz

Note: The overall Single RAT, Multiple Carriers worst case was deemed to be: two 20 MHz NR carriers in B48, two 5 MHz LTE carriers in B41, and 5 MHz NR TDD carriers in B25 and B66, for which full scans were performed.

Recorded data in the 30 MHz - 1 GHz and 18 GHz - 40 GHz ranges show that they do not contain any channel specific emissions in the Multiple RATs, Multiple Carriers test case. Therefore, 1 GHz - 18 GHz RE sweep was deemed to be sufficient for demonstrating compliance in the Single RAT, Multiple Carriers test case.

Full scans were performed using 2 software loads (B48 150 MHz IBW Software load and Default Software load) to cover B48 (IBW 150 MHz) and B41 (IBW 194 MHz).



2.5.6 Radiated Emissions Multi RAT/Multi Carriers - Non-Contiguous Configs (IRU 1649)

Multiple RATs / Multiple Carriers – NR TDD/LTE (B48); NR TDD/LTE (B41) and NR (B25/B66) – 2 and 6 Carriers, Non-Contiguous (IRU 1649)			
B48 PORT (3A, 3B)	B41 PORT (4A, 4B)	B25/B66 (2A, 2B, 1A, 1B) [Worst Case]	
B48 10 MHz 3 NR/10 MHz 3 LTE Carriers (Center frequencies)	B41 10 MHz 3 NR / 5 MHz 3 LTE Carriers (Center frequencies)	B25 5 MHz NR TDD Carriers (Center freq.)	B66 5 MHz NR TDD Carriers (Center freq.)
LTE-Bottom 3555 MHz 3565 MHz 3575 MHz NR-Top 3675 MHz 3685 MHz 3695 MHz	LTE-Bottom 2508 MHz 2513 MHz 2518 MHz NR-Top 2655.5 MHz 2665.5 MHz 2675.5 MHz	1962.5 MHz	2155 MHz
B48 20 MHz 1 NR/20 MHz 1 LTE Carriers (Center frequencies)	B41 10MHz 1 NR/5 MHz 1 LTE Carriers (Center frequencies)	B25 5 MHz NR TDD Carriers (Center freq.)	B66 5 MHz NR TDD Carriers (Center freq.)
B48 150 MHz IBW Software load			
LTE-Bottom 3560 MHz NR-Top 3690 MHz	LTE-Bottom 2508 MHz NR-Top 2675.5 MHz	1962.5 MHz	2155 MHz
Default Software load			
LTE-Bottom 3610 MHz NR-Top 3640 MHz	LTE-Bottom 2498.5 MHz NR-Top 2685 MHz	1962.5 MHz	2155 MHz

Note: The overall Multiple RAT, Multiple Carriers worst case was deemed to be: one 20 MHz NR carrier and one 20 MHz LTE carrier in B48, one 10 MHz NR carrier and one 5 MHz LTE carrier in B41, and 5 MHz NR TDD carriers in B25 and B66, for which full scans were performed.

Full scans were performed using 2 software loads (B48 150 MHz IBW Software load and Default Software load) to cover B48 (IBW 150 MHz) and B41 (IBW 194 MHz).

2.6 Modifications of the EUT during testing

The EUT was not modified prior to or during testing.



2.7 Inventory of the EUT and support equipments

The following tables identifies the inventory of the EUT.

Table 9: Inventory of the EUT (IRU 1648)

Equipment Role	Product Name	Model	Release	Product Serial#
EUT	DOT 2266_B48B41B25B66	KRY 901 537/2	R1B	TD3W388619
Support	IRU 1648	KRC 161 842/1	R1D	TD3F105272
Test set	CT-11 (METS LITE-1)	LPC 102 494/1	R2A	T01G99655
Ethernet Cable	RDI cable: 100m Cat6A, F/UTP, M-M			
SFP+ module	Optical Transceiver Module (CPRI & 10GBASE-LR Lite) (Qty: 8)	Ericsson RDH10265/2		
Fiber cable	2 m length (LC) (Qty: 4)			
RF Cables	2 m length (SMA-N) (Qty: 8)			
Terminations	50 ohm (N) (Qty: 8)			
IRU software (for B48,150 MHz IBW capability testing)	iru3atc_app-CXP2030045_26-R15AX85			
IRU software (Default)	iru3atc_app-CXP2030045_26-R15A701			
Test Definition File	_RRUS_Dot2256_B48B41B25B66_V4.txt			
RUX software version	RUX_9N_OTT_Package RUXTest_OTT_R1V01.vee			



Table 10: Inventory of the EUT (IRU 1649)

Equipment Role	Product Name	Product Number	Release	Product Serial#
EUT	DOT 2266_B48B41B25B66	KRY 901 537/2	R1B	TD3W388619
Support	IRU 1649	KRC 161 842/2	R1F	TD3F119110
Test set	CT-11 (METS LITE-1)	LPC 102 494/1	R2A	T01G99655
Optical Fiber	CPRI, LC, SM, 20m			
Hybrid cable (only for DC power)	100 m length			
SFP+ module	Optical Transceiver Module (CPRI & 10GBASE-LR Lite) (Qty: 10)	Ericsson RDH10265/2		
Fiber cable	2 m length (LC) (Qty: 4)			
RF Cables	2 m length (SMA-N) (Qty: 8)			
Terminations	50 ohm (N) (Qty: 8)			
IRU software (for 150 MHz IBW capability testing)	iru3atc_app-CXP2030045_26-R15AX85			
IRU software (Default)	iru3atc_app-CXP2030045_26-R15A701			
Test Definition File	_RRUS_Dot2256_B48B41B25B66_V4.txt			
RUX software version	RUX_9N_OTT_Package RUXTest_OTT_R1V01.vee			



3. Detailed test results of Emissions

Emissions from systems manifest themselves in two forms: conducted emissions on cables and radiated emissions from the entire system (i.e. electronic modules, hardware, and cables). Regulatory standards restrict these different forms of emissions generated by the system.

The temperature and humidity in the test facilities are controlled. The temperature is maintained between 20 °C and 25 °C, with a relative humidity between 30 % and 60 %. Levels are recorded and any exceptions are included in the detailed test results sections of this report.

3.1 Measurement instrumentation

The measurement instrumentation conforms to the relevant standards in this report: ANSI C63.2, CISPR 16, CISPR 22, and CISPR 32. Calibration of the measurement instrumentation is maintained in accordance with the supplier's recommendations, or as necessary to ensure its accuracy.



3.2 Radiated Emissions, E-field (RE)

This test verifies that the EUT does not produce excess amounts of E-field Radiated Emissions (RE) that could interfere with licensed radiators.

3.2.1 Test specification and limits

The testing requirements are as follows.

Table 11: RE test requirements

Requirement	Method	Country of application
FCC Part 15, Subpart B	FCC Part 15 / ANSI C63.4	USA
FCC Part 24 (Section 24.238(a))	ANSI C63.26	USA
FCC Part 27 (Section 27.53(h))	ANSI C63.26	USA
FCC Part 96 (Section 96.41 e) 2))	ANSI C63.26	USA

The limits of the RE tests are as follows.

Table 12: RE limits at 10 m for Class B of FCC Part 15

Frequency range (MHz)	FCC Part 15 (dB μ V/m)	Detector
30 to 88	29.5	Quasi-Peak
88 to 216	33.0	Quasi-Peak
216 to 960	35.5	Quasi-Peak
960 to 1000	43.5	Quasi-Peak
1000 to 40000	43.5	Average

Table 13: Tx unwanted Emissions limits for FCC Part 24, & Part 27

Frequency range (MHz)	EIRP Limit (dBm)	Calculated EIRP Limit in dB μ V/m
30 - 40000	-13	82.2

Table 14: Emission limits for FCC Part 96 e) 2)

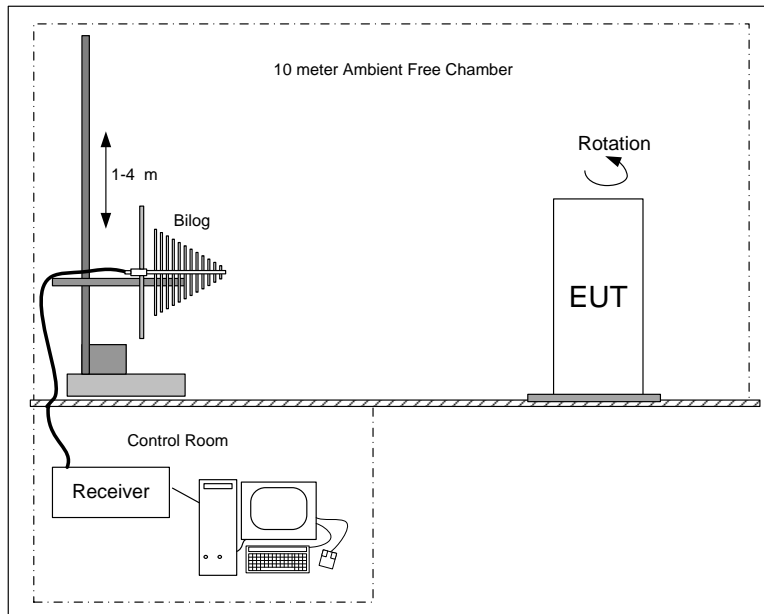
Frequency range (MHz)	FCC Part 96 EIRP Limit Section 96.41 e) 2) (dBm)	Calculated EIRP Limit in dB μ V/m
Below 3540 MHz or above 3710 MHz	-25	70.23
Below 3530 MHz or above 3720 MHz	-40	55.23

3.2.2 Test procedure

Verifications of the test equipment and AFC were performed before the installation of the EUT in accordance with the quality assurance procedures documented in the EMC test procedures document. The test was performed according to the relevant procedures listed in [Table 11](#).

- The EUT was placed on the turntable inside the AFC (configured for normal operation). The system and its cables were separated from the ground plane by an insulating support 10 mm in height.
- For tests between 30 MHz and 1 GHz the receive antenna (BiLog®) was placed 3 m away from the EUT. An initial scan was performed to find emissions/frequencies requiring detailed measurement. The pre-scan was performed by rotating the system 360 degrees while recording all emissions (frequency and amplitude). This procedure was repeated for antenna heights of 1 to 4 m, as well as both polarizations of the receiving antenna.
- For tests above 1 GHz the receive antenna (horn) was placed 3 m away from the EUT. Absorbing cones were placed on the floor between the antenna and the EUT. An initial scan was performed to find emissions/frequencies requiring detailed measurement. The pre-scan was performed by rotating the system 360 degrees while recording all emissions (frequency and amplitude). This procedure was repeated for antenna heights of 1 to 4 m, as well as both polarizations of the receiving antenna.
- For tests between 18 and 40 GHz the receive horn antenna was placed at a 1 m distance from the EUT with the absorbing cones placed on the floor. An initial scan was performed to find emissions/frequencies requiring detail measurement. The pre-scan was performed on all sides of the EUT, using both polarization of the receive antenna to find any system emissions.
- For all above frequency ranges, the pre-scan peak data was compared to the limits. Peaks with less than 6 dB of margin were maximized using the proper detector: the EUT was rotated in azimuth over 360 degrees to identify the direction of maximum emission, antenna height was then varied from 1 to 4 m to obtain maximum emission level.

Figure 4: Setup of Radiated Emissions



3.2.3 Calculation of the compliance margin

The following example shows the way in which the compliance margin is calculated in the “RE Test Results” tables.

The rows in these tables are defined as follows.

Meter Reading (dB μ V) = Voltage measured using the spectrum analyzer with the proper detector

Correction (dB) = Cumulative gain or loss of pre-amplifier and cables used in the measurement path (dB) + Antenna Factor (dB)

Level (dB μ V/m) = Corrected value or field strength, that is, the parameter of interest that is compared to the limit

Margin (dB) = Level with respect to the appropriate limit (a negative Margin indicates that the Level is below the limit and that the measurement is a Pass)

The values in the Level row are calculated as follows: Level = Meter Reading + Correction (dB)

The values in the Margin row are calculated as follows: Margin = Level – Limit



3.2.4 Measurement uncertainties

The expanded measurement instrumentation uncertainty with a 95 % level of confidence, calculated according to the method described in CISPR 16 is:

- ± 3.8 dB between 30 MHz and 1 GHz
- ± 4.7 dB between 1 GHz and 10 GHz
- ± 4.8 dB between 10 GHz and 18 GHz
- ± 4.6 dB between 18 GHz and 26.5 GHz
- ± 4.8 dB between 26.5 GHz and 40 GHz

3.2.5 Radiated Emissions test ranges

As per customer request following test ranges were tested on each test configuration.

Table 15: Radiated Emissions test range selection - by customer

EUT Configurations/Setup	Test result	30 – 1000 (MHz)	1 – 10 (GHz)	10 – 18 (GHz)	18 – 26.5 (GHz)	26.5 – 40 (GHz)
Single RAT / Single carrier - NR - Middle channel with IRU 1648 - Section 2.5.1	3.2.6	Yes	Yes	Yes	Yes	Yes
Single RAT / Single carrier - LTE Middle channel with IRU 1648 - Section 2.5.1	3.2.7	Yes	Yes	Yes	Yes	Yes
Single RAT / Single carrier - Worst case (LTE & NR) - Bottom channel with IRU 1648 - Section 2.5.1	3.2.8	No	Yes	Yes	No	NO
Single RAT / Single carrier - Worst case (LTE & NR) - Top channel with IRU 1648 - Section 2.5.1	3.2.9	No	Yes	Yes	No	No
Single RAT / Multiple Carriers – Contiguous with IRU 1648 – Section 2.5.2	3.2.10	No	Yes	Yes	No	NO
Multiple RATs / Multiple Carriers – Contiguous with IRU 1648 - Section 2.5.3	3.2.11	Yes	Yes	Yes	Yes	Yes
Single RAT / Single Carrier – Middle with IRU 1649 – Section 2.5.4	3.2.12	Yes	Yes	Yes	Yes	Yes
Single RAT / Multiple Carriers – Non-Contiguous with IRU 1649 - Section 2.5.5	3.2.13	No	Yes	Yes	No	No
Multiple RATs / Multiple Carriers – Non-Contiguous with IRU 1649 – Section 2.5.6	3.2.14	Yes	Yes	Yes	Yes	Yes

3.2.6 Test results of RE (Single RAT/Single carrier – NR - Mid channel) with IRU 1648

Test location: 10-meter Ambient Free Chamber (AFC)

Date tested: 12 - 21 December 2022

Tested by: Nour El Masri

Test configurations are identified in sections [Configurations of the EUT & Single RAT / Single Carrier Configurations \(IRU 1648\) - NR](#).

For the following test results that have supporting data tables, negative margin values indicate a pass.

Figure 5: Plot of RE at 3 m – 30 to 1000 MHz (S.RAT/ S Carrier – NR- Mid ch) - IRU 1648

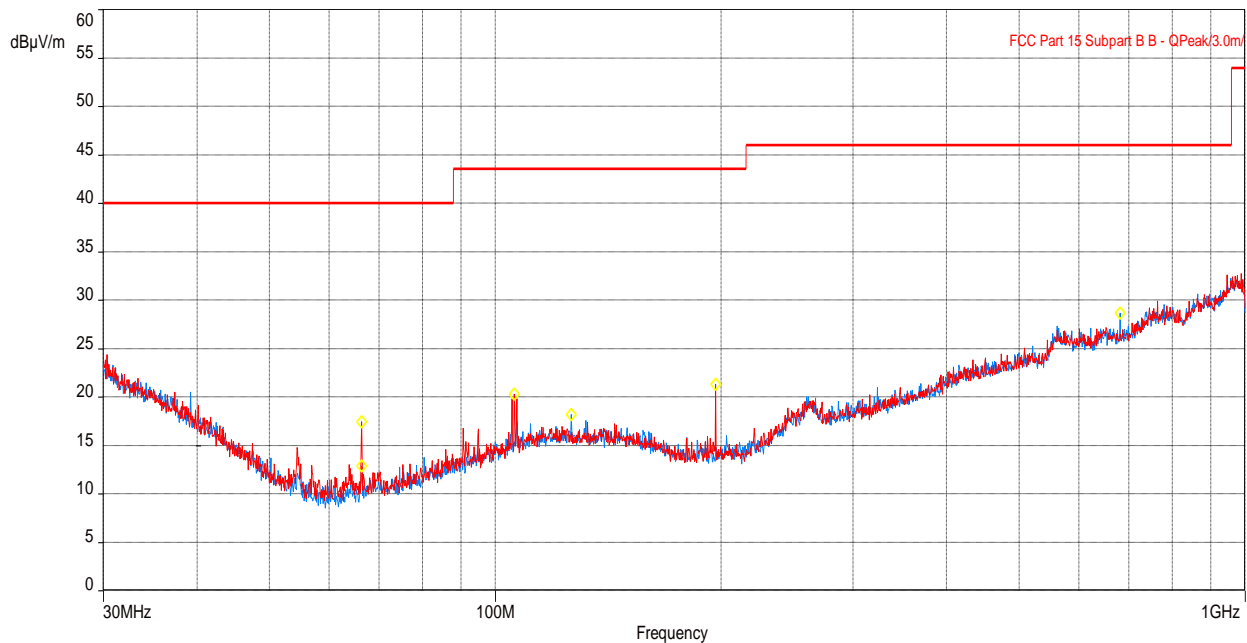


Table 16: RE test results from 30 to 1000 MHz for FCC Part 15 (S.RAT/S.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level Quasi Peak (dBµV/m)	Limit Quasi-peak (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
66.35709008	12.94	40.00	-27.06	1.16	91.25	Vertical	-14.55
106.0960351	17.30	43.52	-26.22	1.00	341.00	Vertical	-9.46
196.7671569	10.66	43.52	-32.86	1.37	311.75	Vertical	-10.32
66.35705128	11.96	40.00	-28.04	2.56	360.00	Horizontal	-14.55
126.3273685	11.46	43.52	-32.06	1.00	350.75	Horizontal	-8.46
681.1065546	21.33	46.02	-24.69	3.37	48.25	Horizontal	2.12



Table 17: RE test results from 30 to 1000 MHz for FCC Part 24/27 (S.RAT/S.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
66.35709008	12.94	82.2	-69.26	1.16	91.25	Vertical	-14.55
106.0960351	17.30	82.2	-64.90	1.00	341.00	Vertical	-9.46
196.7671569	10.66	82.2	-71.54	1.37	311.75	Vertical	-10.32
66.35705128	11.96	82.2	-70.24	2.56	360.00	Horizontal	-14.55
126.3273685	11.46	82.2	-70.74	1.00	350.75	Horizontal	-8.46
681.1065546	21.33	82.2	-60.87	3.37	48.25	Horizontal	2.12

Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

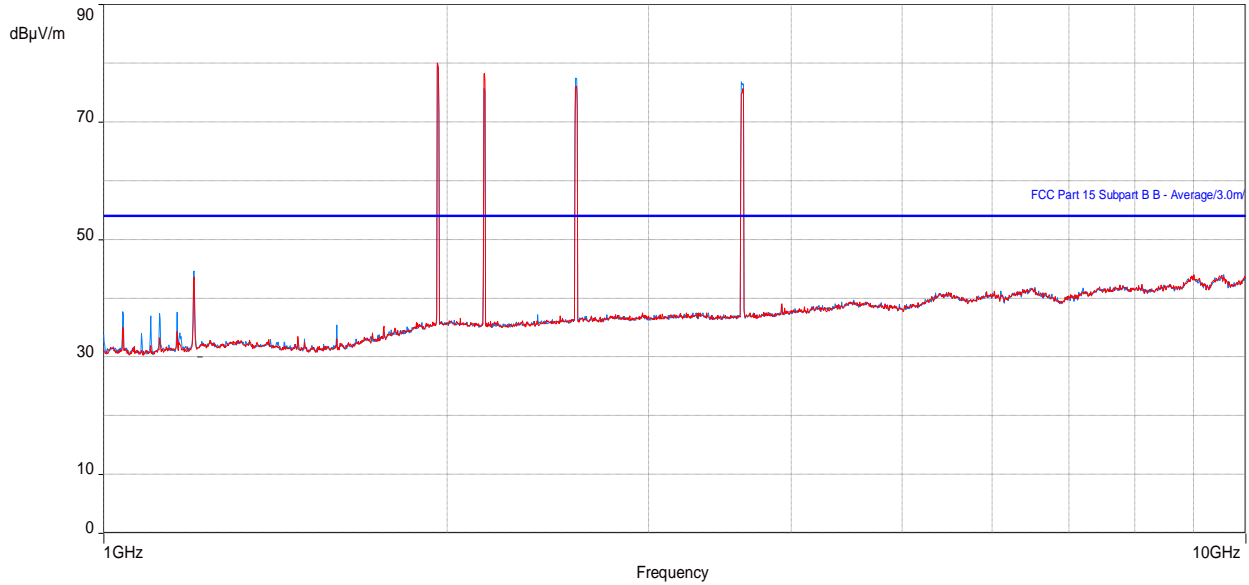
Table 18: RE test results from 30 to 1000 MHz for FCC Part 96 (S.RAT/S.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
66.35709008	12.94	55.23	-42.29	1.16	91.25	Vertical	-14.55
106.0960351	17.30	55.23	-37.93	1.00	341.00	Vertical	-9.46
196.7671569	10.66	55.23	-44.57	1.37	311.75	Vertical	-10.32
66.35705128	11.96	55.23	-43.27	2.56	360.00	Horizontal	-14.55
126.3273685	11.46	55.23	-43.77	1.00	350.75	Horizontal	-8.46
681.1065546	21.33	55.23	-33.90	3.37	48.25	Horizontal	2.12

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.



Figure 6: Plot of RE at 3m from 1 to 10GHz (S.RAT/ S.Carrier – NR- Mid ch – IRU 1648)



Note: Peaks above the limit are leakage of the EUT’s fundamentals from the 50-ohm terminations.

Table 19: RE test results from 1 to 10 GHz for FCC Part 15 (S.RAT/S.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level Average (dBµV/m)	Limit Average (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.867308	38.90	53.96	-15.06	2.47	262.00	Horizontal	-4.17
1199.949038	38.36	53.96	-15.60	2.09	66.50	Vertical	-4.17
5470.530769	36.91	53.96	-17.05	1.00	52.50	Horizontal	7.21
5498.558013	37.60	53.96	-16.36	1.00	343.50	Vertical	7.27



Table 20: RE test results from 1 to 10 GHz for Part 24/27 (S.RAT/S.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level (dB μ V/m)	EIRP Limit (dB μ V/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.867308	38.90	82.2	-43.30	2.47	262.00	Horizontal	-4.17
1199.949038	38.36	82.2	-43.84	2.09	66.50	Vertical	-4.17
5470.530769	36.91	82.2	-45.29	1.00	52.50	Horizontal	7.21
5498.558013	37.60	82.2	-44.60	1.00	343.50	Vertical	7.27

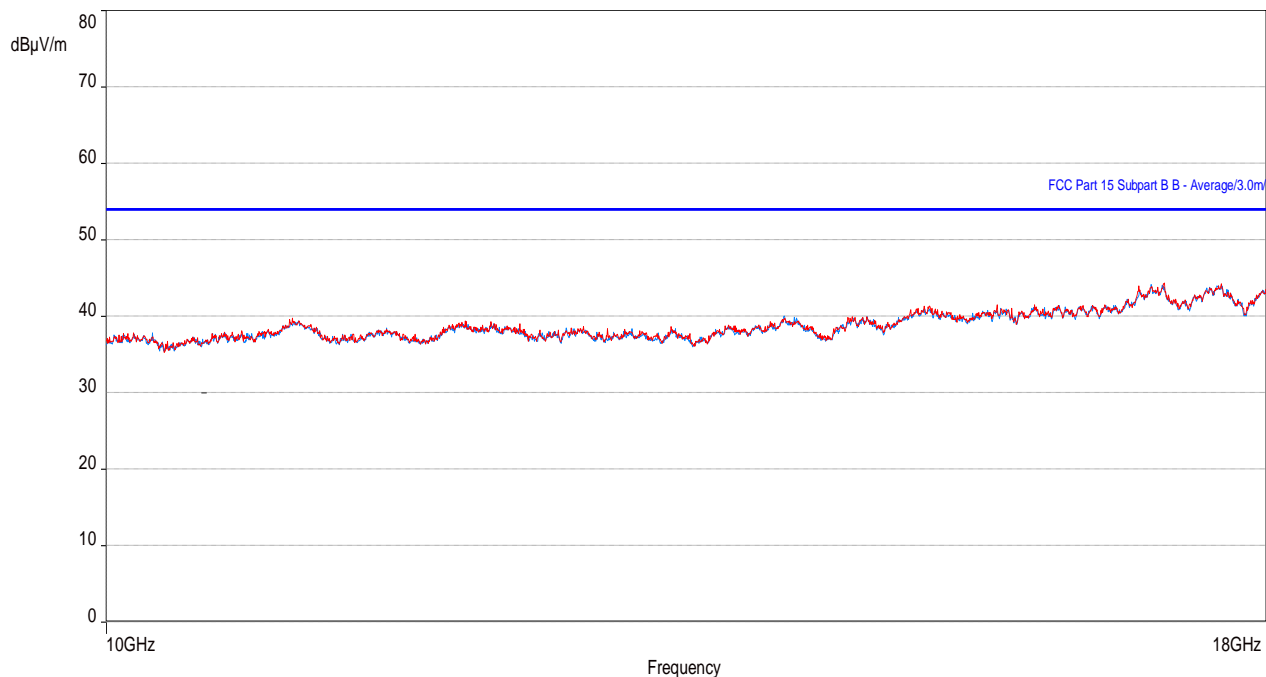
Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dB μ V/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

Table 21: RE test results from 1 to 10 GHz for Part 96 (S.RAT/S.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level (dB μ V/m)	EIRP Limit (dB μ V/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.867308	38.90	55.23	-16.33	2.47	262.00	Horizontal	-4.17
1199.949038	38.36	55.23	-16.87	2.09	66.50	Vertical	-4.17
5470.530769	36.91	55.23	-18.32	1.00	52.50	Horizontal	7.21
5498.558013	37.60	55.23	-17.63	1.00	343.50	Vertical	7.27

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dB μ V/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.

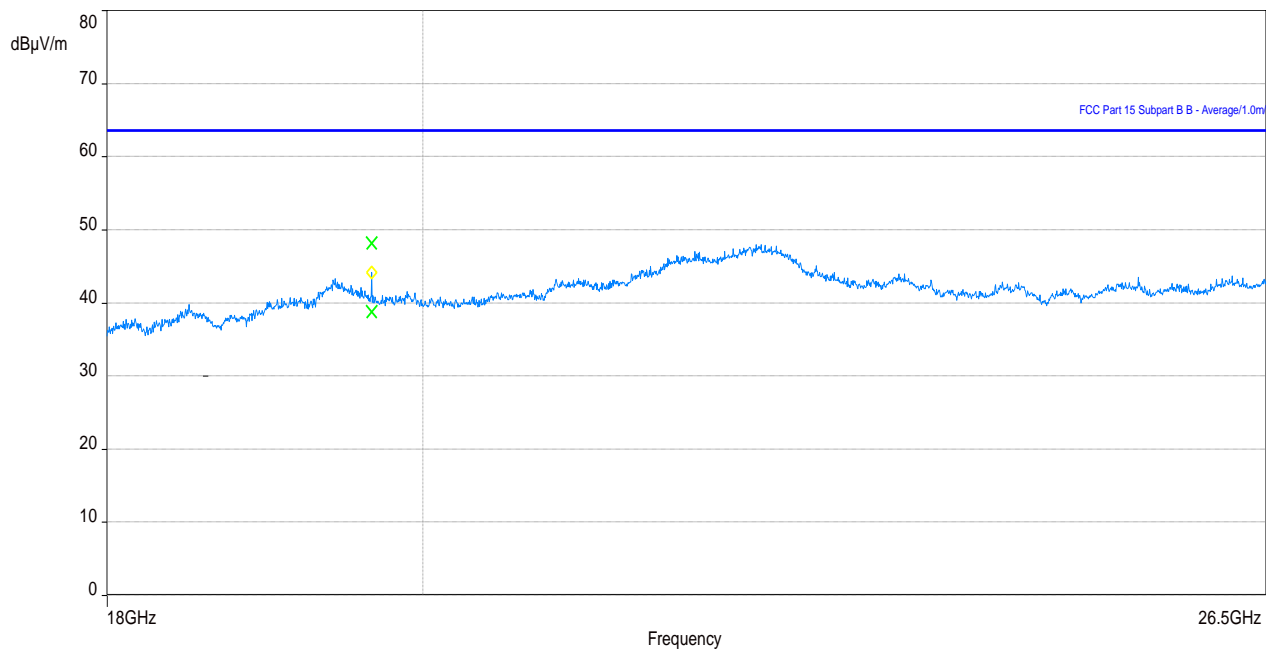
Figure 7: Plot of RE at 3m from 10 to 18 GHz (S.RAT/S.Carrier – NR - Mid ch – IRU 1648)



Note 1: In the Plot above, no emissions exceed the FCC Part 15 radiated emissions limit.

Note 2: In the Plot above, no emissions exceed the Part 24/Part 27/Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27/Part 96, see antenna port conducted emissions in applicable test report.

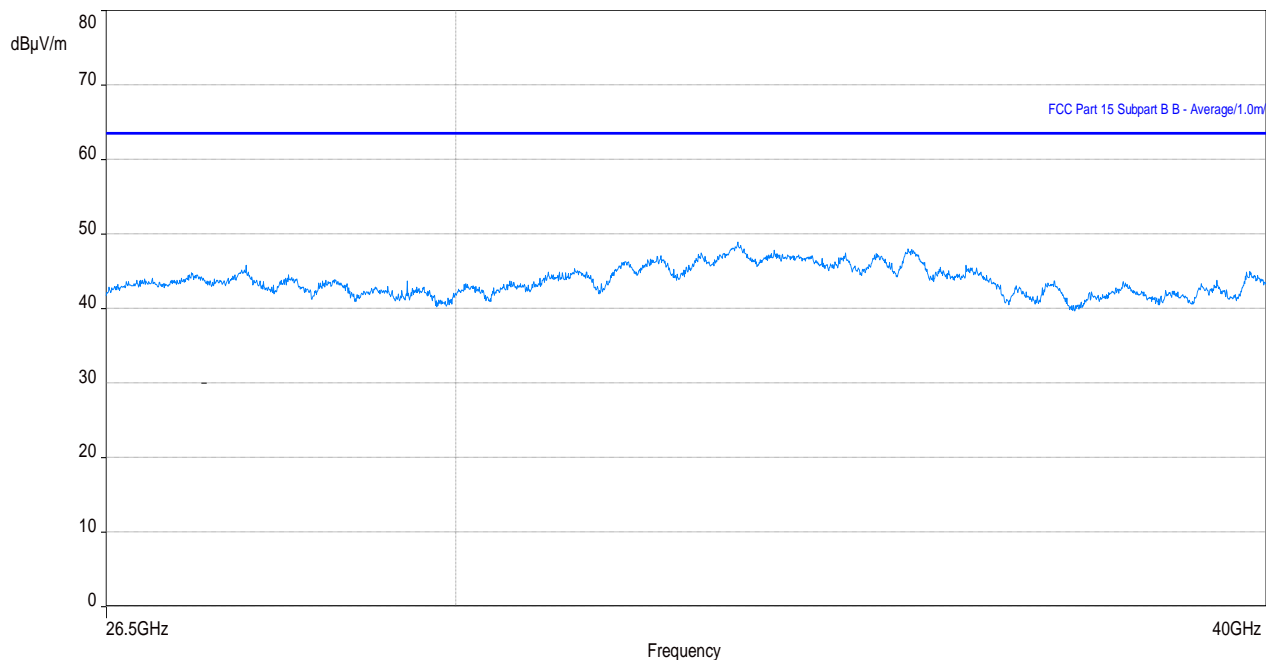
Figure 8: Plot of RE at 1m from 18 to 26.5 GHz (S.RAT/S.Carrier – NR - Mid ch – IRU 1648)



Note 1: In the plot above No Emissions exceeds the FCC Part 15 limit.

Note 2: In the plot above, no emissions exceed the Part 24/27/96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/27/96, see antenna port conducted emissions in applicable test report.

Figure 9: Plot of RE at 1m from 26.5 to 40 GHz (S.RAT/S.Carrier – NR - Mid ch – IRU 1648)



Note 1: In the plot above No Emissions exceeds the FCC Part 15 limit.

Note 2: In the plot above, no emissions exceed the Part 24/27/96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/27/96, see antenna port conducted emissions in applicable test report.

3.2.7 Test results of RE (Single RAT/Single carrier – LTE - Mid channel) with IRU 1648

Test location: 10-meter Ambient Free Chamber (AFC)

Date tested: 12 - 21 December 2022

Tested by: Nour El Masri

Test configurations are identified in sections [Configurations of the EUT & Single RAT / Single Carrier Configurations \(IRU 1648\) – LTE](#).

For the following test results that have supporting data tables, negative margin values indicate a pass.

Figure 10: Plot of RE at 3 m – 30 to 1000 MHz (S.RAT/ S Carrier – LTE- Mid ch) - IRU 1648

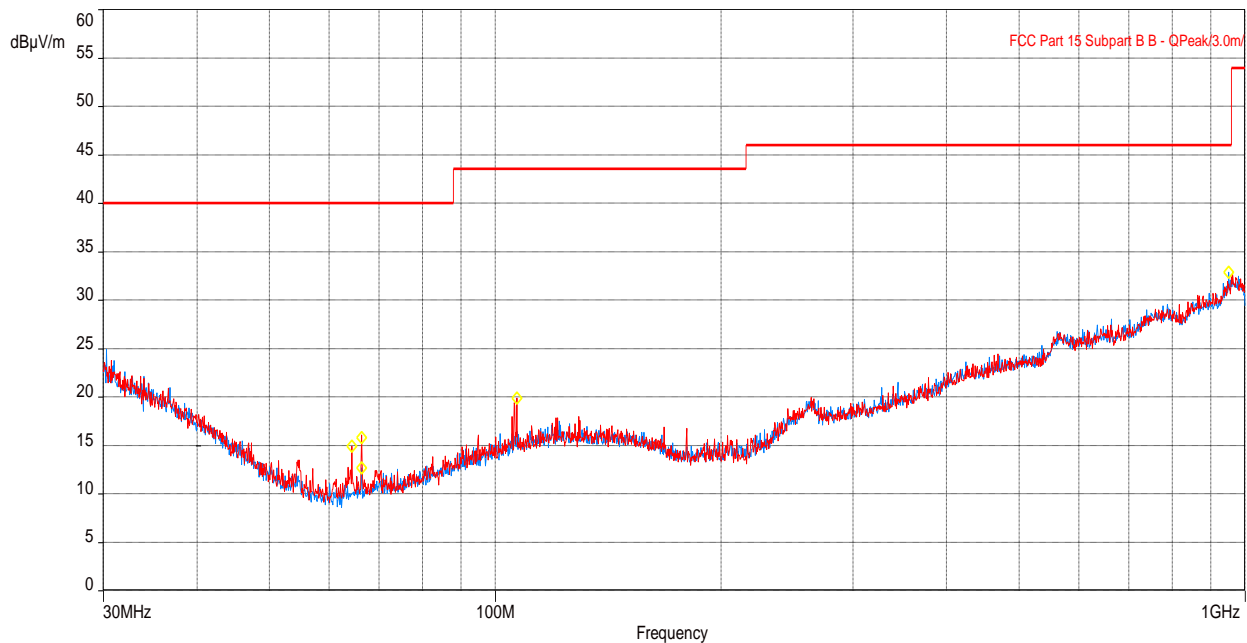


Table 22: RE test results from 30 to 1000 MHz for FCC Part 15 (S.RAT/S.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level Quasi Peak (dBµV/m)	Limit Quasi-peak (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
64.40122469	9.56	40.00	-30.44	1.53	360.00	Vertical	-14.77
66.35680736	14.46	40.00	-25.54	1.27	91.50	Vertical	-14.55
106.8993654	16.91	43.52	-26.61	1.00	340.75	Vertical	-9.37
66.35689103	13.44	40.00	-26.56	2.23	225.50	Horizontal	-14.55



Table 23: RE test results from 30 to 1000 MHz for FCC Part 24/27 (S.RAT/S.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
64.40122469	9.56	82.2	-72.64	1.53	360.00	Vertical	-14.77
66.35680736	14.46	82.2	-67.74	1.27	91.50	Vertical	-14.55
106.8993654	16.91	82.2	-65.29	1.00	340.75	Vertical	-9.37
66.35689103	13.44	82.2	-68.76	2.23	225.50	Horizontal	-14.55

Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

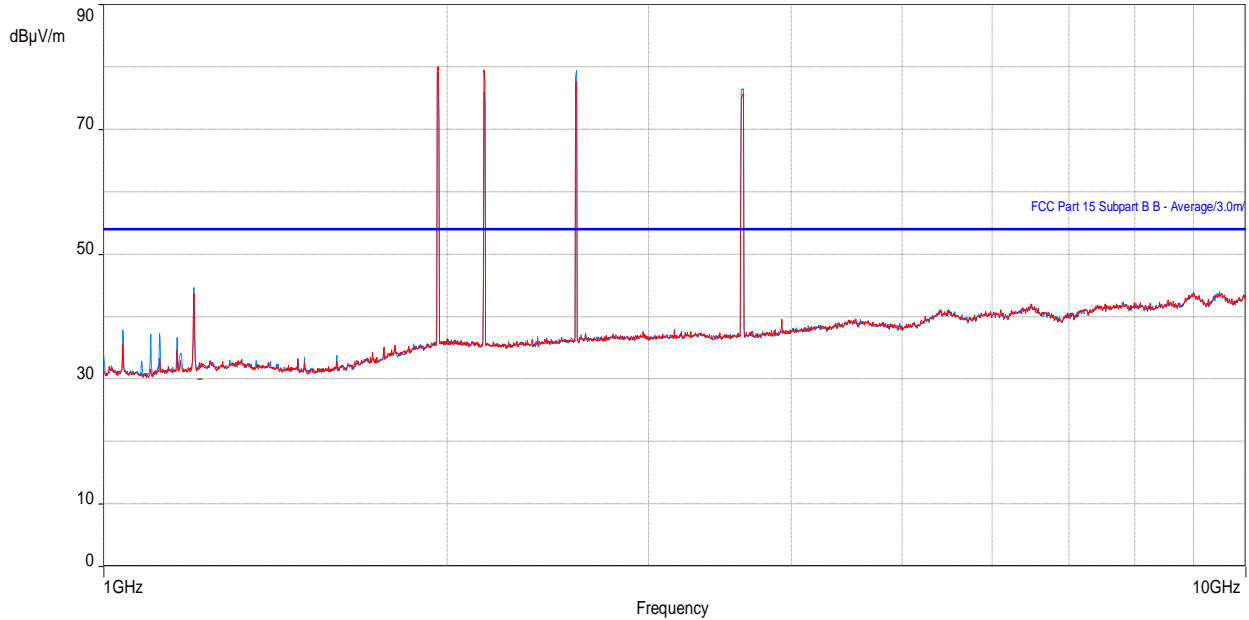
Table 24: RE test results from 30 to 1000 MHz for FCC Part 96 (S.RAT/S.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
64.40122469	9.56	55.23	-45.67	1.53	360.00	Vertical	-14.77
66.35680736	14.46	55.23	-40.77	1.27	91.50	Vertical	-14.55
106.8993654	16.91	55.23	-38.32	1.00	340.75	Vertical	-9.37
66.35689103	13.44	55.23	-41.79	2.23	225.50	Horizontal	-14.55

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.



Figure 11: Plot of RE at 3m from 1 to 10GHz (S.RAT/ S.Carrier – LTE - Mid ch – IRU 1648)



Note: Peaks above the limit are leakage of the EUT’s fundamentals from the 50-ohm terminations.

Table 25: RE test results from 1 to 10 GHz for FCC Part 15 (S.RAT/S.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level Average (dBµV/m)	Limit Average (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.91859	38.33	53.96	-15.63	2.09	293.00	Vertical	-4.17
1199.958974	38.86	53.96	-15.10	2.47	204.00	Horizontal	-4.17
5397.537821	37.00	53.96	-16.96	3.50	360.00	Vertical	6.99
5398.613141	37.14	53.96	-16.82	1.00	38.25	Horizontal	7.01



Table 26: RE test results from 1 to 10 GHz for Part 24/27 (S.RAT/S.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.91859	38.33	82.2	-43.87	2.09	293.00	Vertical	-4.17
1199.958974	38.86	82.2	-43.34	2.47	204.00	Horizontal	-4.17
5397.537821	37.00	82.2	-45.20	3.50	360.00	Vertical	6.99
5398.613141	37.14	82.2	-45.06	1.00	38.25	Horizontal	7.01

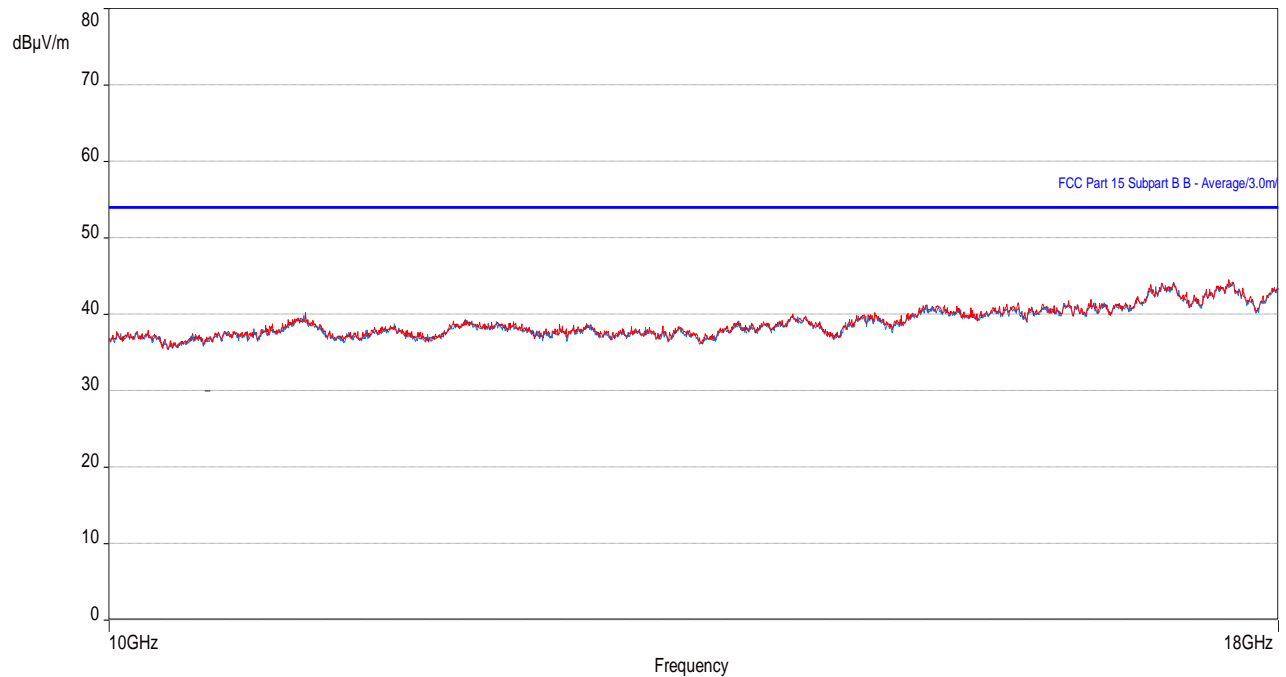
Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

Table 27: RE test results from 1 to 10 GHz for Part 96 (S.RAT/S.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.91859	38.33	55.23	-16.90	2.09	293.00	Vertical	-4.17
1199.958974	38.86	55.23	-16.37	2.47	204.00	Horizontal	-4.17
5397.537821	37.00	55.23	-18.23	3.50	360.00	Vertical	6.99
5398.613141	37.14	55.23	-18.09	1.00	38.25	Horizontal	7.01

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.

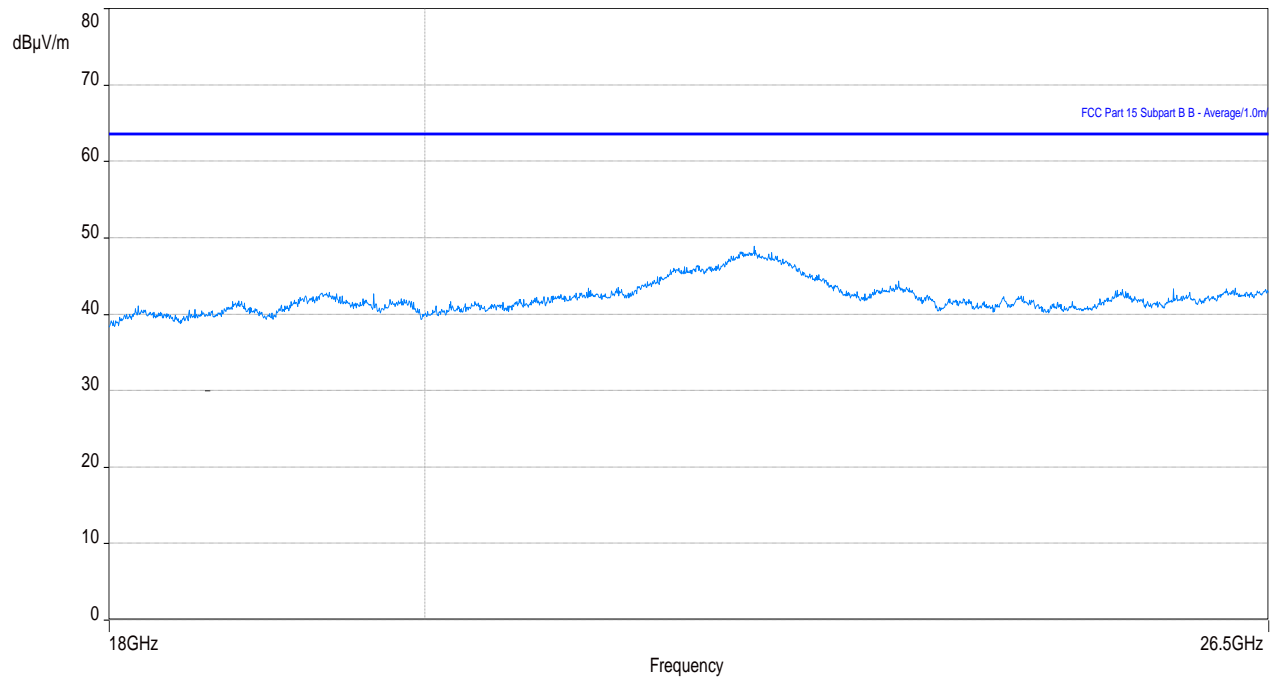
Figure 12: Plot of RE at 3m from 10 to 18 GHz (S.RAT/S.Carrier – LTE - Mid ch – IRU 1648)



Note 1: In the Plot above, no emissions exceed the FCC Part 15 radiated emissions limit.

Note 2: In the Plot above, no emissions exceed the Part 24/Part 27/Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27/Part 96, see antenna port conducted emissions in applicable test report.

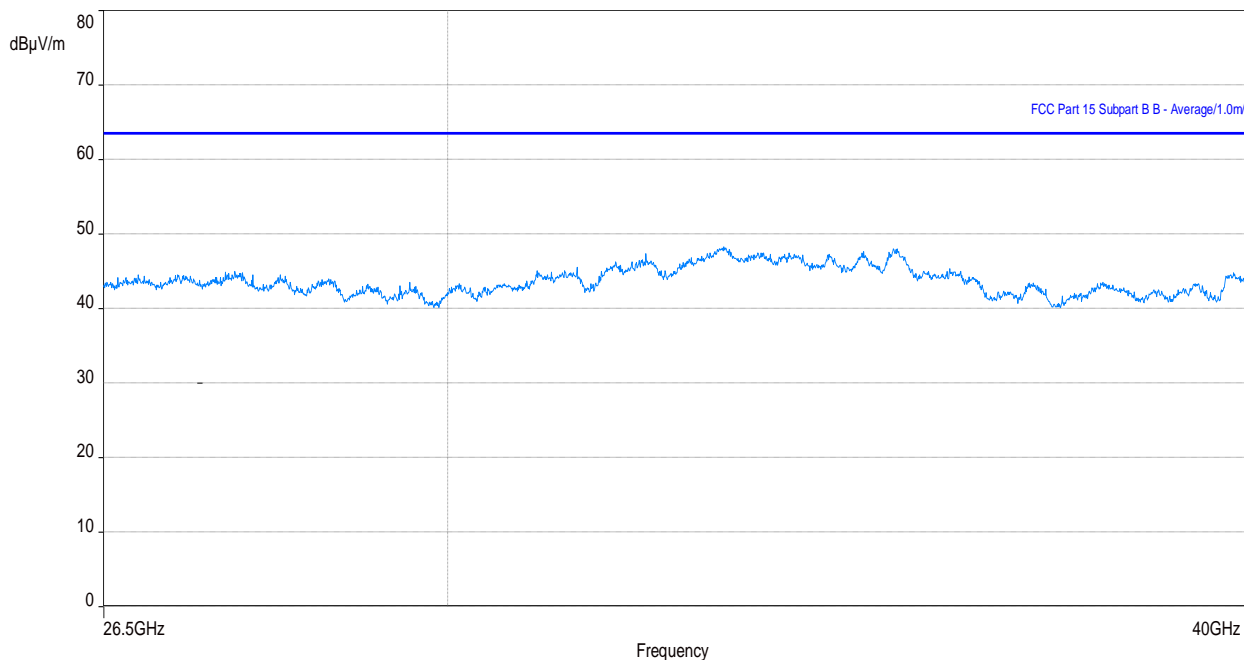
Figure 13: Plot of RE at 1m from 18 to 26.5 GHz (S.RAT/S.Carrier – LTE- Mid ch – IRU 1648)



Note 1: In the plot above No Emissions exceeds the FCC Part 15 limit.

Note 2: In the plot above, no emissions exceed the Part 24/27/96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/27/96, see antenna port conducted emissions in applicable test report.

Figure 14: Plot of RE at 1m from 26.5 to 40 GHz (S.RAT/S.Carrier – LTE- Mid ch – IRU 1648)



Note 1: In the plot above No Emissions exceeds the FCC Part 15 limit.

Note 2: In the plot above, no emissions exceed the Part 24/27/96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/27/96, see antenna port conducted emissions in applicable test report.

3.2.8 Test results of RE (Single RAT/Single carrier– LTE & NR - Bot ch) with IRU 1648

Test location: 10-meter Ambient Free Chamber (AFC)

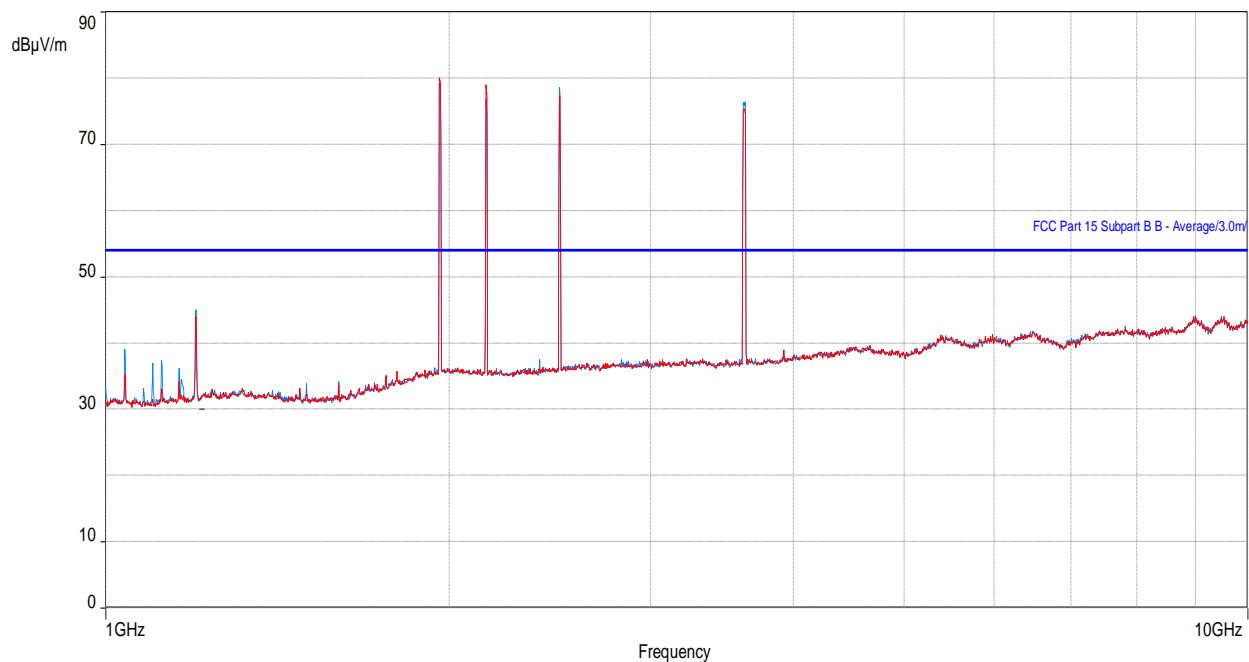
Date tested: 12 - 21 December, 2022

Tested by: Nour El Masri

Test configurations are identified in sections [Configurations of the EUT & Single RAT / Single Carrier Configurations \(IRU 1648\)](#) – worst case.

For the following test results that have supporting data tables, negative margin values indicate a pass.

Figure 15: Plot of RE at 3m from 1 to 10GHz (S.RAT/ S.Carrier – LTE & NR - Bot ch – IRU 1648)



Note: Peaks above the limit are leakage of the EUT’s fundamentals from the 50-ohm terminations.

Table 28: RE test results from 1 to 10 GHz for FCC Part 15 (S.RAT/S.Carrier – Bot ch – IRU 1648)

Frequency (MHz)	Level Average (dBµV/m)	Limit Average (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.966667	39.00	53.96	-14.96	2.47	268.50	Horizontal	-4.17
1200.096474	38.19	53.96	-15.77	2.09	69.25	Vertical	-4.16
5385.236538	36.75	53.96	-17.21	1.00	350.75	Vertical	6.84
5403.6375	37.08	53.96	-16.88	1.00	16.25	Horizontal	7.04



Table 29: RE test results from 1 to 10 GHz for Part 24/27 (S.RAT/S.Carrier – Bot ch – IRU 1648)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.966667	39.00	82.2	-43.20	2.47	268.50	Horizontal	-4.17
1200.096474	38.19	82.2	-44.01	2.09	69.25	Vertical	-4.16
5385.236538	36.75	82.2	-45.45	1.00	350.75	Vertical	6.84
5403.6375	37.08	82.2	-45.12	1.00	16.25	Horizontal	7.04

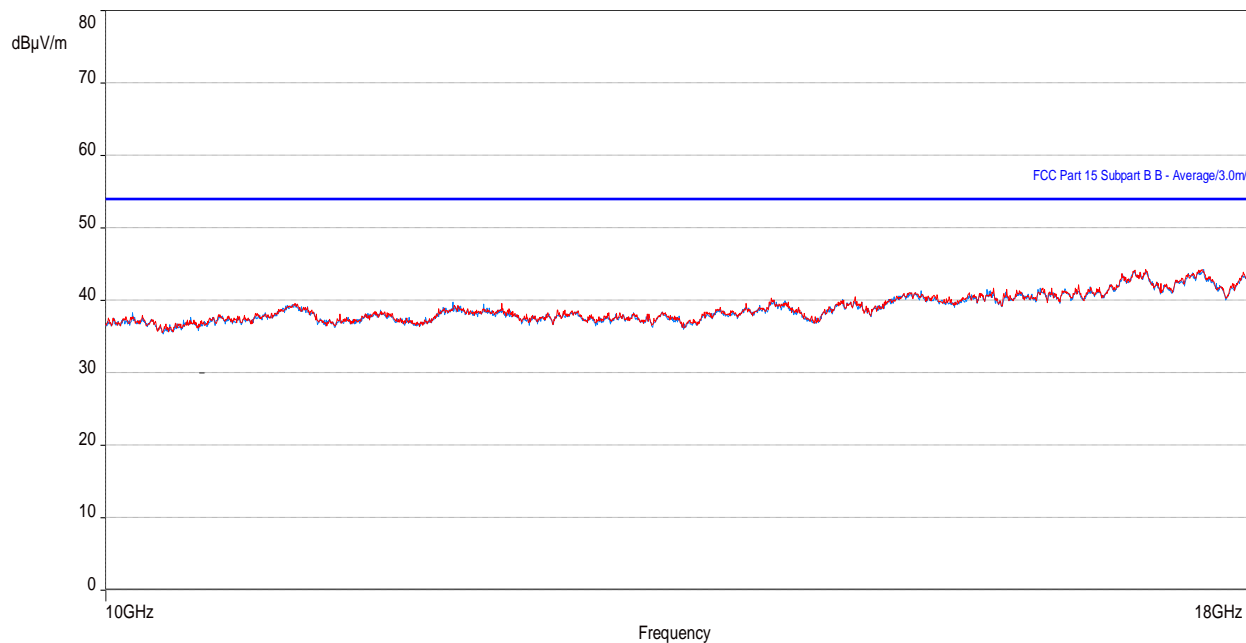
Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

Table 30: RE test results from 1 to 10 GHz for Part 96 (S.RAT/S.Carrier – Bot ch – IRU 1648)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.966667	39.00	55.23	-16.23	2.47	268.50	Horizontal	-4.17
1200.096474	38.19	55.23	-17.04	2.09	69.25	Vertical	-4.16
5385.236538	36.75	55.23	-18.48	1.00	350.75	Vertical	6.84
5403.6375	37.08	55.23	-18.15	1.00	16.25	Horizontal	7.04

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.

Figure 16: Plot of RE at 3m from 10 to 18 GHz (S.RAT/S.Carrier –LTE & NR - Bot ch – IRU 1648)



Note 1: In the Plot above, no emissions exceed the FCC Part 15 radiated emissions limit.

Note 2: In the Plot above, no emissions exceed the Part 24/Part 27/Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27/Part 96, see antenna port conducted emissions in applicable test report.

3.2.9 Test results of RE (Single RAT/Single carrier– LTE & NR – Top ch) with IRU 1648)

Test location: 10-meter Ambient Free Chamber (AFC)

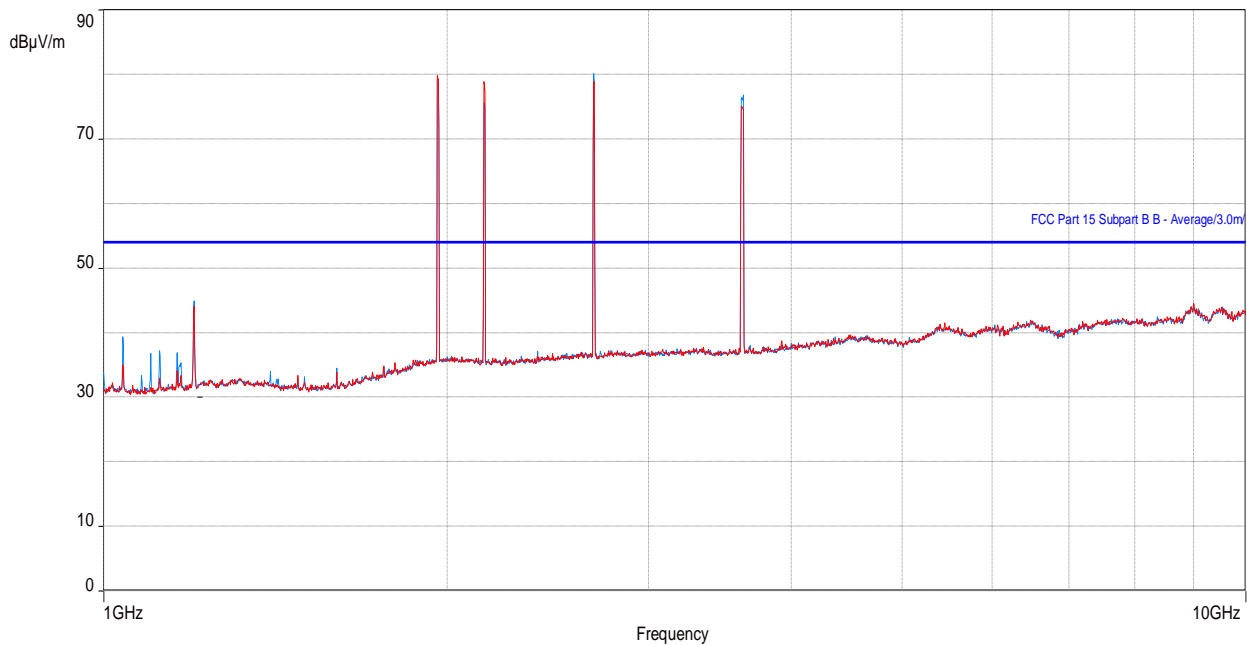
Date tested: 12 - 21 December, 2022

Tested by: Nour El Masri

Test configurations are identified in sections [Configurations of the EUT & Single RAT / Single Carrier Configurations \(IRU 1648\)](#) – worst case.

For the following test results that have supporting data tables, negative margin values indicate a pass.

Figure 17: Plot of RE at 3m from 1 to 10GHz (S.RAT/ S.Carrier – LTE & NR - Top ch – IRU 1648)



Note: Peaks above the limit are leakage of the EUT’s fundamentals from the 50-ohm terminations.

Table 31: RE test results from 1 to 10 GHz for FCC Part 15 (S.RAT/S.Carrier – Top ch – IRU 1648)

Frequency (MHz)	Level Average (dBµV/m)	Limit Average (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.905769	38.31	53.96	-15.65	2.09	38.00	Vertical	-4.17
1199.992308	39.03	53.96	-14.93	2.47	264.50	Horizontal	-4.17
5453.779167	36.84	53.96	-17.12	1.00	235.50	Vertical	7.18
5501.435897	37.28	53.96	-16.68	3.50	1.50	Horizontal	7.27



Table 32: RE test results from 1 to 10 GHz for Part 24/27 (S.RAT/S.Carrier – Top ch – IRU 1648)

Frequency (MHz)	Level (dB μ V/m)	EIRP Limit (dB μ V/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.905769	38.31	82.2	-43.89	2.09	38.00	Vertical	-4.17
1199.992308	39.03	82.2	-43.17	2.47	264.50	Horizontal	-4.17
5453.779167	36.84	82.2	-45.36	1.00	235.50	Vertical	7.18
5501.435897	37.28	82.2	-44.92	3.50	1.50	Horizontal	7.27

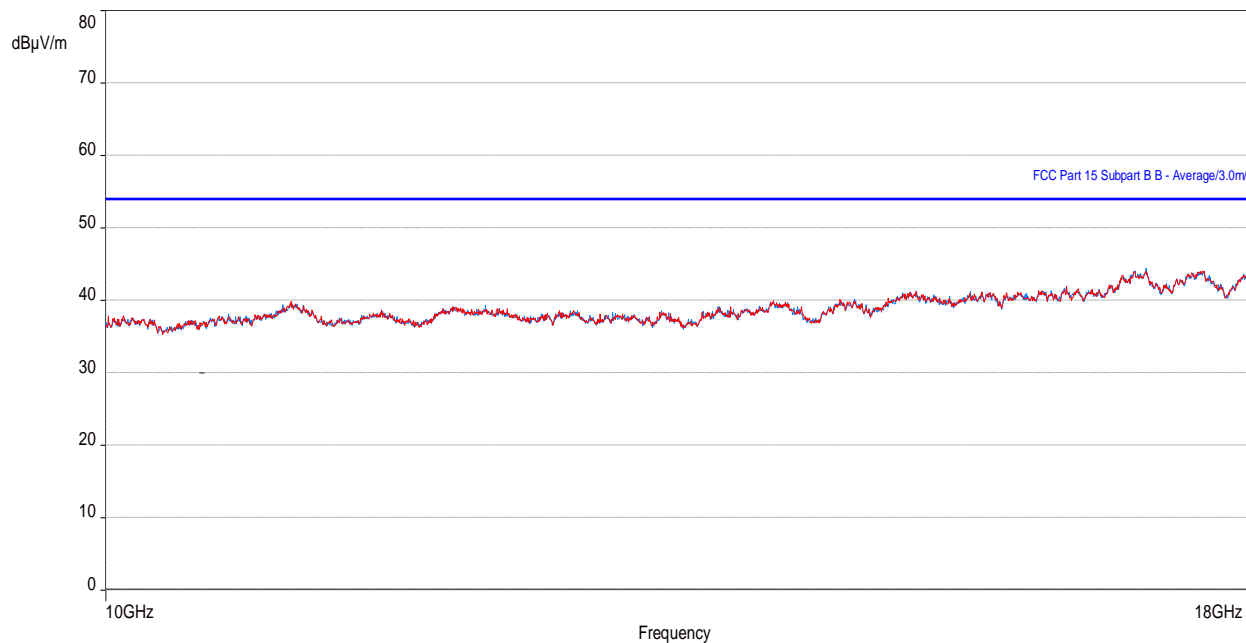
Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dB μ V/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

Table 33: RE test results from 1 to 10 GHz for Part 96 (S.RAT/S.Carrier – Top ch – IRU 1648)

Frequency (MHz)	Level (dB μ V/m)	EIRP Limit (dB μ V/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.905769	38.31	55.23	-16.92	2.09	38.00	Vertical	-4.17
1199.992308	39.03	55.23	-16.20	2.47	264.50	Horizontal	-4.17
5453.779167	36.84	55.23	-18.39	1.00	235.50	Vertical	7.18
5501.435897	37.28	55.23	-17.95	3.50	1.50	Horizontal	7.27

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dB μ V/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.

Figure 18: Plot of RE at 3m from 10 to 18 GHz (S.RAT/S.Carrier –LTE & NR - Top ch – IRU 1648)



Note 1: In the Plot above, no emissions exceed the FCC Part 15 radiated emissions limit.

Note 2: In the Plot above, no emissions exceed the Part 24/Part 27/Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27/Part 96, see antenna port conducted emissions in applicable test report.

3.2.10 Test results of RE (Single RAT/ Multi carrier, Contiguous – Mid ch) with IRU 1648

Test location: 10-meter Ambient Free Chamber (AFC)

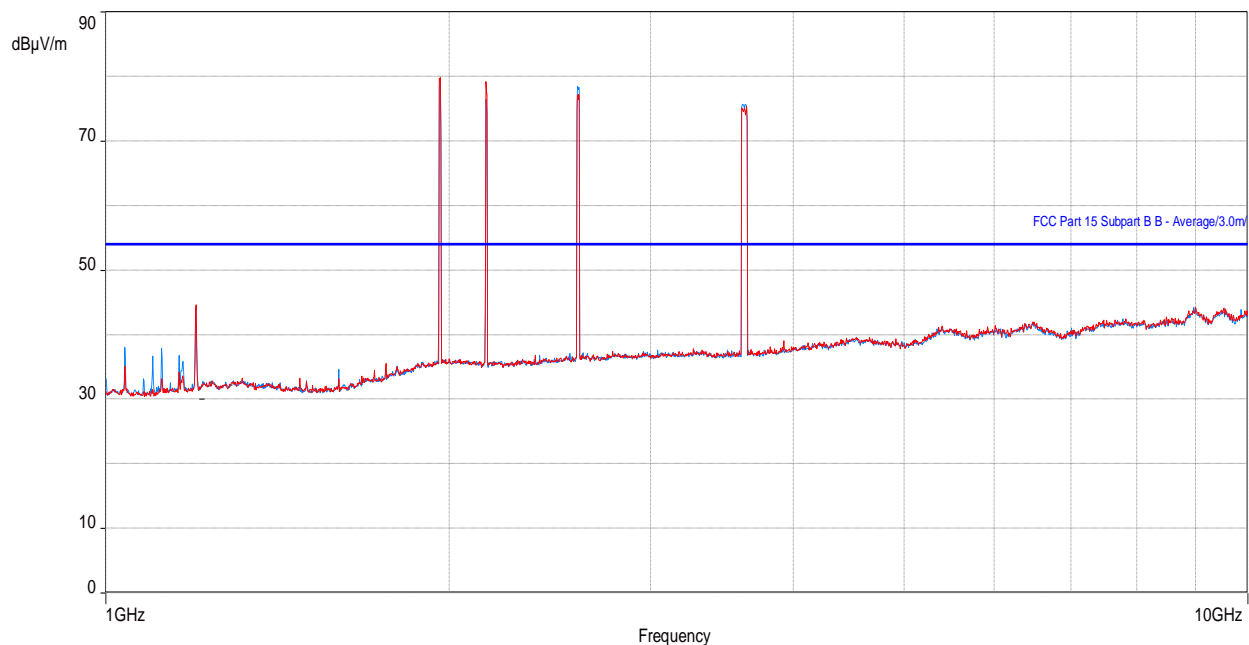
Date tested: 12 - 21 December, 2022

Tested by: Nour El Masri

Test configurations are identified in sections [Configurations of the EUT & Radiated Emissions - Single RAT / Multi Carrier Configs - Contiguous \(IRU 1648\)](#).

For the following test results that have supporting data tables, negative margin values indicate a pass.

Figure 19: Plot of RE at 3m from 1 to 10GHz (S.RAT/Multi Carrier – Mid ch – IRU 1648)



Note: Peaks above the limit are leakage of the EUT’s fundamentals from the 50-ohm terminations.

Table 34: RE test results from 1 to 10 GHz for FCC Part 15 (S.RAT/Multi Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level Average (dBµV/m)	Limit Average (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.919872	38.97	53.96	-14.99	2.47	261.50	Horizontal	-4.17
1199.949038	38.52	53.96	-15.44	2.08	67.00	Vertical	-4.17
5400.285897	37.21	53.96	-16.75	3.05	52.50	Horizontal	7.03
5401.417308	37.24	53.96	-16.72	1.00	23.50	Vertical	7.03



Table 35: RE test results from 1 to 10 GHz for Part 24/27 (S.RAT/Multi Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.919872	38.97	82.2	-43.23	2.47	261.50	Horizontal	-4.17
1199.949038	38.52	82.2	-43.68	2.08	67.00	Vertical	-4.17
5400.285897	37.21	82.2	-44.99	3.05	52.50	Horizontal	7.03
5401.417308	37.24	82.2	-44.96	1.00	23.50	Vertical	7.03

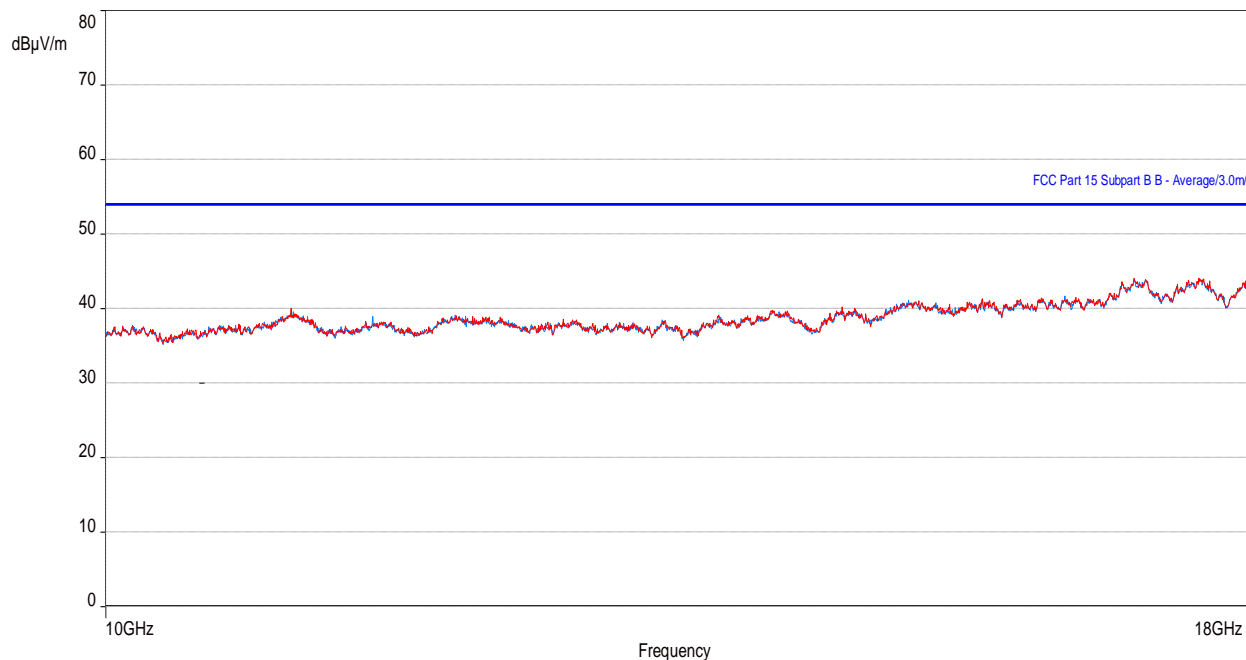
Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

Table 36: RE test results from 1 to 10 GHz for Part 96 (S.RAT/Multi Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.919872	38.97	55.23	-16.26	2.47	261.50	Horizontal	-4.17
1199.949038	38.52	55.23	-16.71	2.08	67.00	Vertical	-4.17
5400.285897	37.21	55.23	-18.02	3.05	52.50	Horizontal	7.03
5401.417308	37.24	55.23	-17.99	1.00	23.50	Vertical	7.03

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.

Figure 20: Plot of RE at 3m from 10 to 18 GHz (S.RAT/Multi Carrier – Mid ch – IRU 1648)



Note 1: In the plot above No Emissions exceeds the FCC Part 15 limit.

Note 2: In the plot above, no emissions exceed the Part 24/27/96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/27/96, see antenna port conducted emissions in applicable test report.

3.2.11 Test results of RE (Multi RAT / Multi carrier - Mid channel) with IRU 1648

Test location: 10-meter Ambient Free Chamber (AFC)

Date tested: 12 - 21 December, 2022

Tested by: Nour El Masri

Test configurations are identified in the sections [Configurations of the EUT & Radiated Emissions - Multiple RAT/Multi Carrier Configs-contiguous \(IRU 1648\)](#).

For the following test results that have supporting data tables, negative margin values indicate a pass.

Figure 21: Plot of RE at 3 m – 30 to 1000 MHz (M.RAT/M.Carrier – Mid ch – IRU 1648)

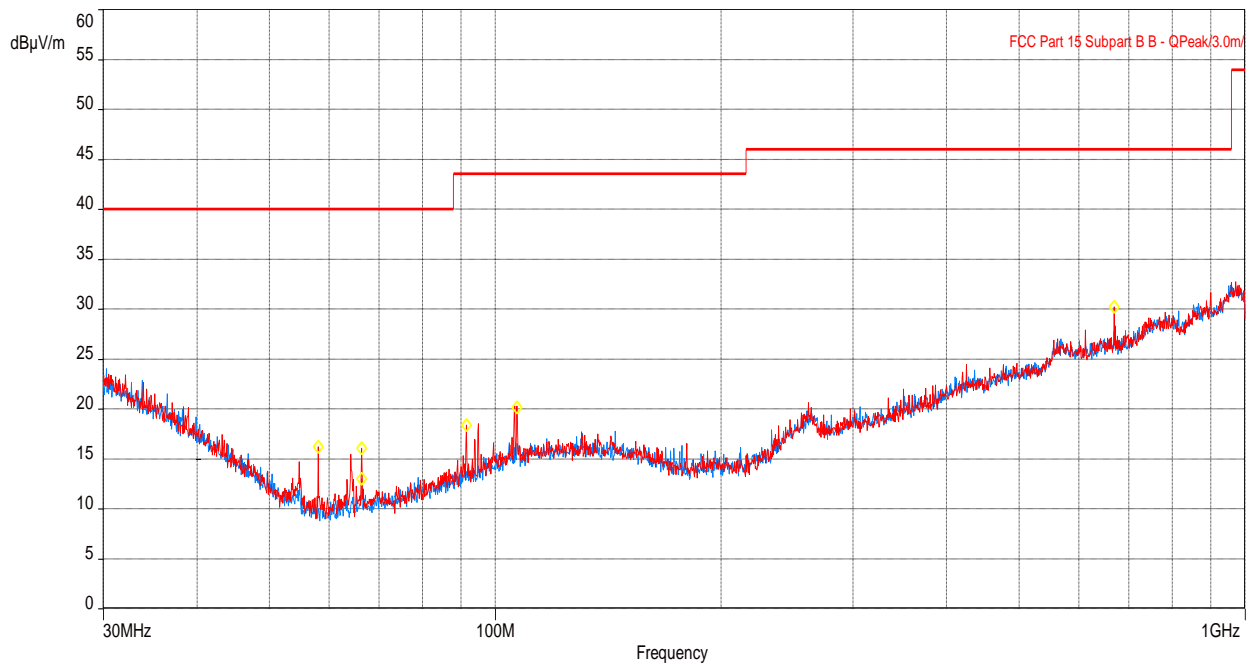


Table 37: RE test results from 30 to 1000 MHz for FCC Part 15 (M.RAT/M.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level Quasi Peak (dBµV/m)	Limit Quasi-peak (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
58.03764744	7.30	40.00	-32.70	1.21	355.25	Vertical	-15.00
66.35709008	16.34	40.00	-23.66	3.73	225.50	Vertical	-14.55
91.49387213	16.81	43.52	-26.71	3.72	355.00	Vertical	-11.37



Table 38: RE test results from 30 to 1000 MHz for FCC Part 24/27 (M.RAT/M.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level (dB μ V/m)	EIRP Limit (dB μ V/m)	Margin to (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
58.03764744	7.30	82.2	-74.90	1.21	355.25	Vertical	-15.00
66.35709008	16.34	82.2	-65.86	3.73	225.50	Vertical	-14.55
91.49387213	16.81	82.2	-65.39	3.72	355.00	Vertical	-11.37

Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

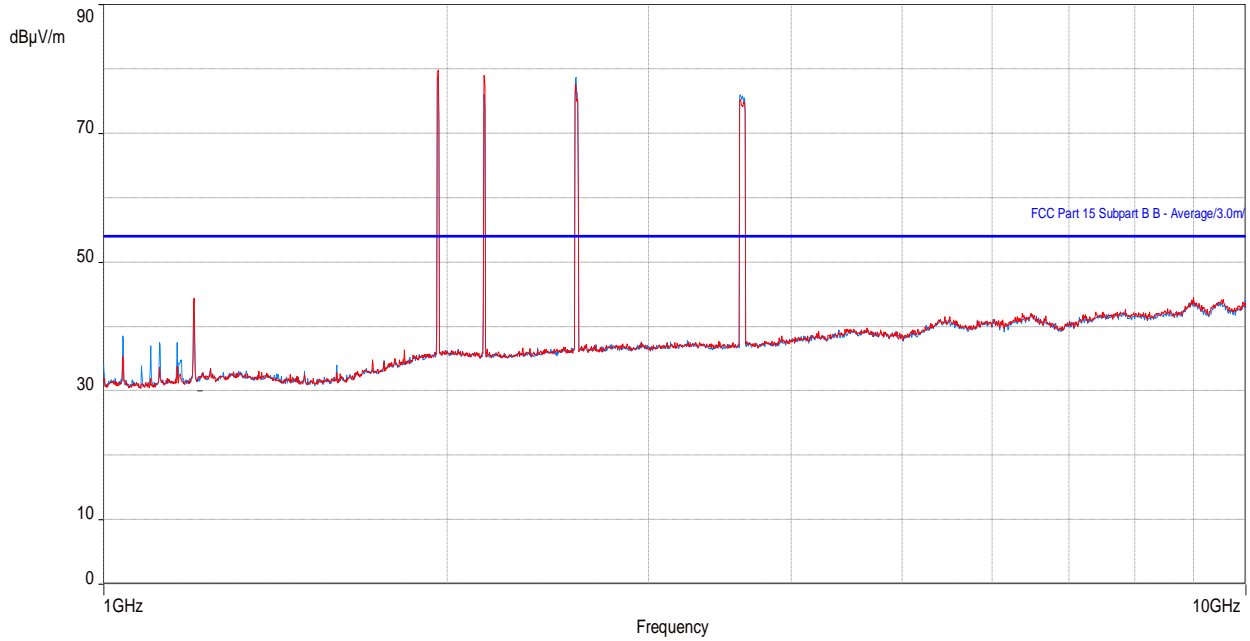
Table 39: RE test results from 30 to 1000 MHz for FCC Part 96 (M.RAT/M.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level (dB μ V/m)	EIRP Limit (dB μ V/m)	Margin to (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
58.03764744	7.30	55.23	-47.93	1.21	355.25	Vertical	-15.00
66.35709008	16.34	55.23	-38.89	3.73	225.50	Vertical	-14.55
91.49387213	16.81	55.23	-38.42	3.72	355.00	Vertical	-11.37

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.



Figure 22: Plot of RE at 3m from 1 to 10GHz (M.RAT/ M.Carrier – Mid ch – IRU 1648)



Note: Peaks above the limit are leakage of the EUT’s fundamentals from the 50-ohm terminations.

Table 40: RE test results from 1 to 10 GHz for FCC Part 15 (M.RAT/M.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level Average (dBµV/m)	Limit Average (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.904487	39.08	53.96	-14.88	2.47	264.25	Horizontal	-4.17
1199.985897	38.53	53.96	-15.43	2.09	170.50	Vertical	-4.17
5465.931731	37.04	53.96	-16.92	1.00	360.00	Horizontal	7.20
5506.619231	37.30	53.96	-16.66	1.00	360.00	Vertical	7.24



Table 41: RE test results from 1 to 10 GHz for Part 24/27 (M.RAT/M.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.904487	39.08	82.2	-43.12	2.47	264.25	Horizontal	-4.17
1199.985897	38.53	82.2	-43.67	2.09	170.50	Vertical	-4.17
5465.931731	37.04	82.2	-45.16	1.00	360.00	Horizontal	7.20
5506.619231	37.30	82.2	-44.90	1.00	360.00	Vertical	7.24

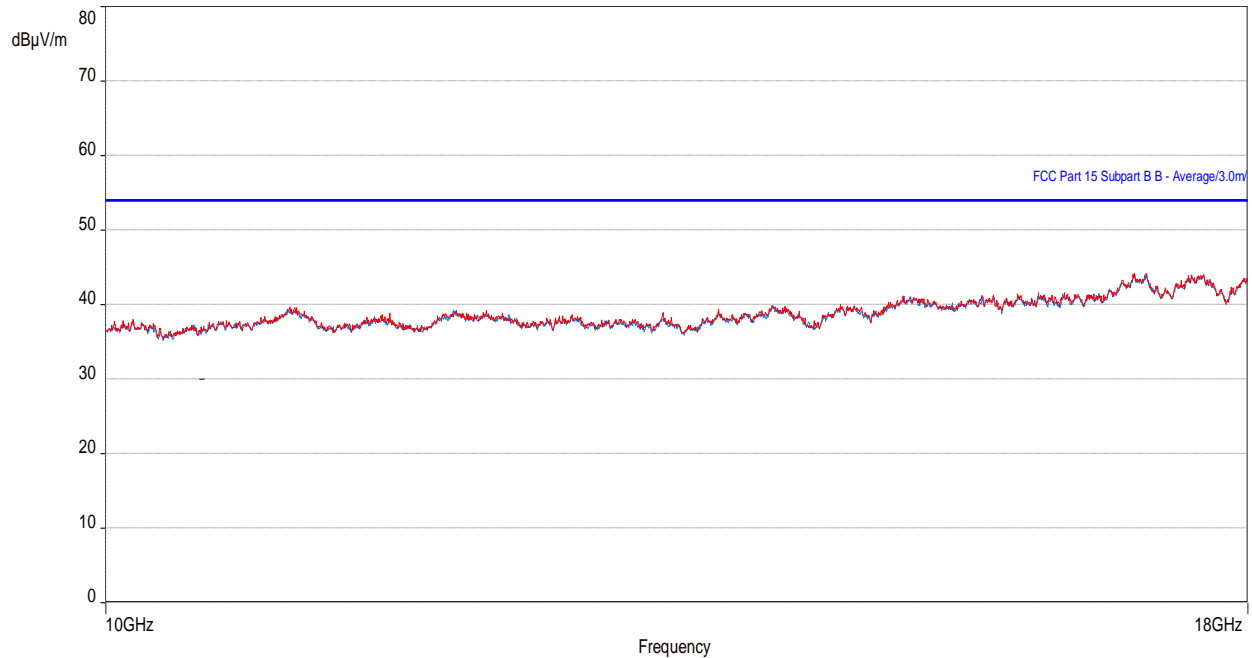
Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

Table 42: RE test results from 1 to 10 GHz for Part 96 (M.RAT/M.Carrier – Mid ch – IRU 1648)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.904487	39.08	55.23	-16.15	2.47	264.25	Horizontal	-4.17
1199.985897	38.53	55.23	-16.7	2.09	170.50	Vertical	-4.17
5465.931731	37.04	55.23	-18.19	1.00	360.00	Horizontal	7.20
5506.619231	37.30	55.23	-17.93	1.00	360.00	Vertical	7.24

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.

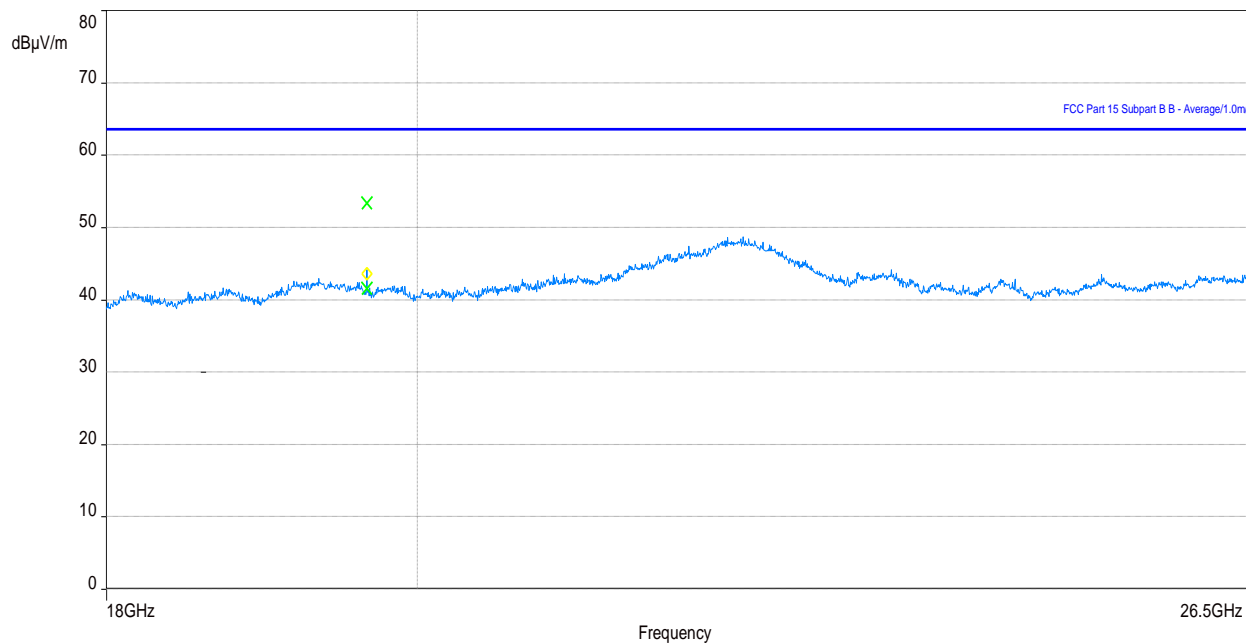
Figure 23: Plot of RE at 3m from 10 to 18 GHz (M.RAT/M.Carrier – Mid ch – IRU 1648)



Note 1: In the Plot above, no emissions exceed the FCC Part 15 radiated emissions limit.

Note 2: In the Plot above, no emissions exceed the Part 24/Part 27/Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27/Part 96, see antenna port conducted emissions in applicable test report.

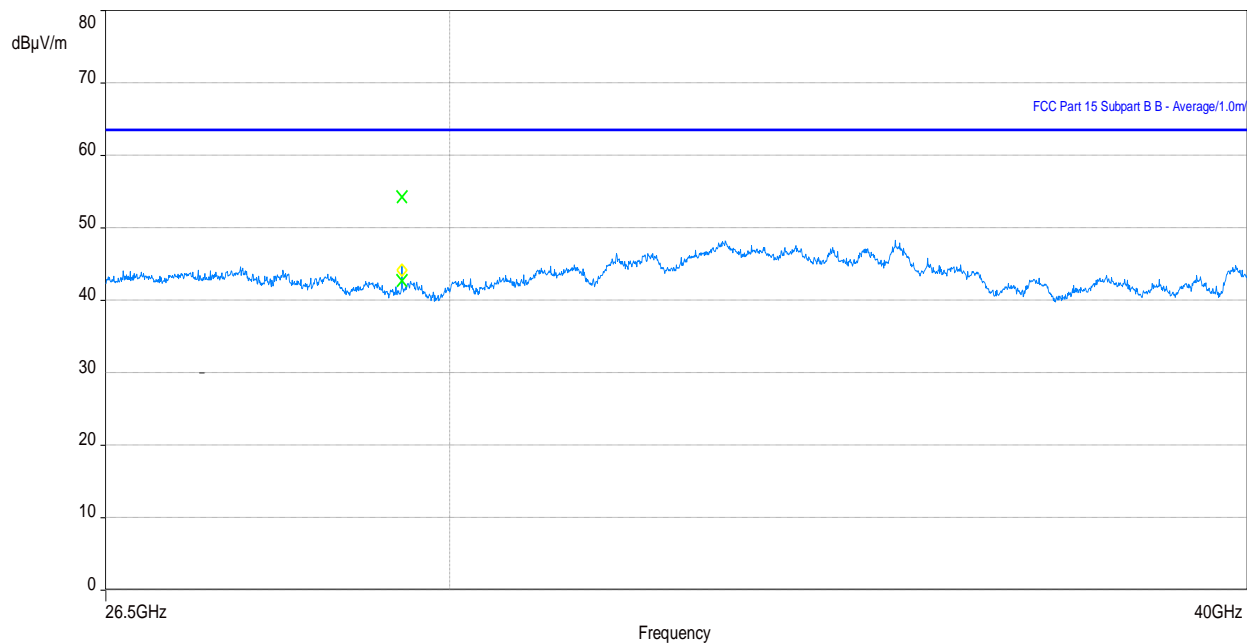
Figure 24: Plot of RE at 1m from 18 to 26.5 GHz (M.RAT/M.Carrier – Mid ch – IRU 1648)



Note 1: In the plot above No Emissions exceeds the FCC Part 15 limit.

Note 2: In the plot above, no emissions exceed the Part 24/27/96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/27/96, see antenna port conducted emissions in applicable test report.

Figure 25: Plot of RE at 1m from 26.5 to 40 GHz (M.RAT/M.Carrier – Mid ch – IRU 1648)



Note 1: In the plot above No Emissions exceeds the FCC Part 15 limit.

Note 2: In the plot above, no emissions exceed the Part 24/27/96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/27/96, see antenna port conducted emissions in applicable test report.

3.2.12 Test results of RE (Single RAT/Single carrier - Middle channel) with IRU 1649

Test location: 10-meter Ambient Free Chamber (AFC)

Date tested: 12 - 21 December, 2022

Tested by: Nour El Masri

Test configurations are identified in the sections [Configurations of the EUT & Radiated Emissions Single RAT / Single Carrier Configs \(IRU 1649\)](#).

For the following test results that have supporting data tables, negative margin values indicate a pass.

Figure 26: Plot of RE at 3 m – 30 to 1000 MHz (S.RAT/S.Carrier – Mid ch – IRU 1649)

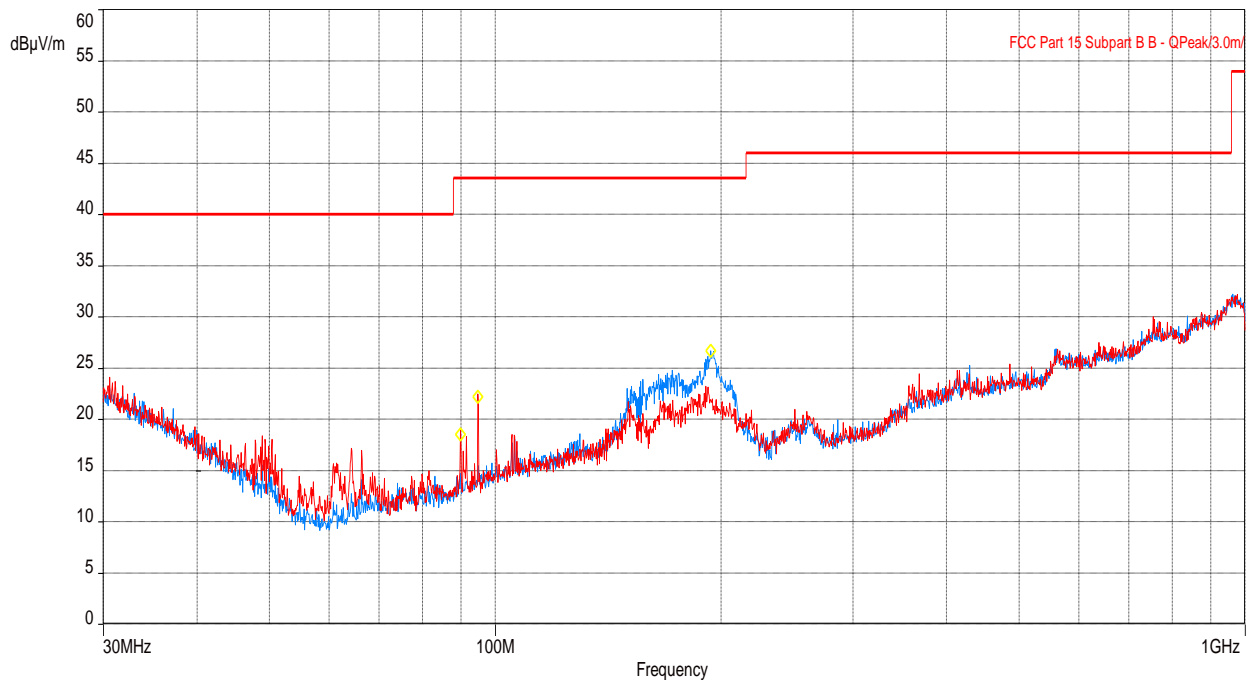


Table 43: RE test results from 30 to 1000 MHz for FCC Part 15 (S.RAT/S.Carrier – Mid ch – IRU 1649)

Frequency (MHz)	Level Quasi Peak (dBµV/m)	Limit Quasi-peak (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
89.86178172	18.13	43.52	-25.39	1.00	-1.75	Vertical	-11.66
94.88454521	21.29	43.52	-22.23	1.00	323.75	Vertical	-10.90
193.8501056	25.70	43.52	-17.82	1.90	312.25	Horizontal	-10.37
193.8948172	25.74	43.52	-17.78	1.86	326.25	Horizontal	-10.37



Table 44: RE test results from 30 to 1000 MHz for FCC Part 24/27 (S.RAT/S.Carrier – Mid ch – IRU 1649)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
89.86178172	18.13	82.2	-64.07	1.00	-1.75	Vertical	-11.66
94.88454521	21.29	82.2	-60.91	1.00	323.75	Vertical	-10.90
193.8501056	25.70	82.2	-56.50	1.90	312.25	Horizontal	-10.37
193.8948172	25.74	82.2	-56.46	1.86	326.25	Horizontal	-10.37

Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

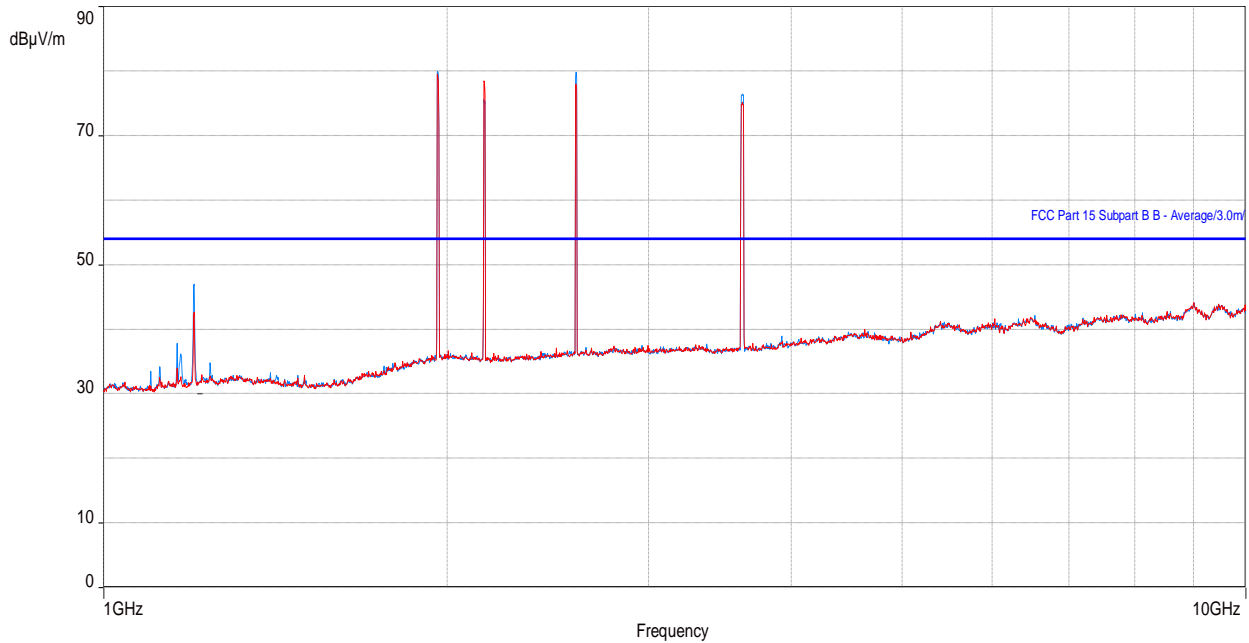
Table 45: RE test results from 30 to 1000 MHz for FCC Part 24/27 (S.RAT/S.Carrier – Mid ch – IRU 1649)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
89.86178172	18.13	55.23	-37.10	1.00	-1.75	Vertical	-11.66
94.88454521	21.29	55.23	-33.94	1.00	323.75	Vertical	-10.90
193.8501056	25.70	55.23	-29.53	1.90	312.25	Horizontal	-10.37
193.8948172	25.74	55.23	-56.46	1.86	326.25	Horizontal	-10.37

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.



Figure 27: Plot of RE at 3m from 1 to 10GHz (S.RAT/ S.Carrier – Mid ch – IRU 1649)



Note: Peaks above the limit are leakage of the EUT’s fundamentals from the 50-ohm terminations.

Table 46: RE test results from 1 to 10 GHz for FCC Part 15 (S.RAT/S.Carrier – Mid ch – IRU 1649)

Frequency (MHz)	Level Average (dBµV/m)	Limit Average (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.695833	38.03	53.96	-15.93	2.20	30.50	Vertical	-4.17
1159.758974	34.65	53.96	-19.31	2.25	149.25	Horizontal	-4.39
1199.889744	41.41	53.96	-12.55	2.41	206.75	Horizontal	-4.17
1239.708333	32.67	53.96	-21.29	2.41	110.25	Horizontal	-3.53



Table 47: RE test results from 1 to 10 GHz for Part 24/27 (S.RAT/S.Carrier – Mid ch – IRU 1649)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.695833	38.03	82.2	-44.17	2.20	30.50	Vertical	-4.17
1159.758974	34.65	82.2	-47.55	2.25	149.25	Horizontal	-4.39
1199.889744	41.41	82.2	-40.79	2.41	206.75	Horizontal	-4.17
1239.708333	32.67	82.2	-49.53	2.41	110.25	Horizontal	-3.53

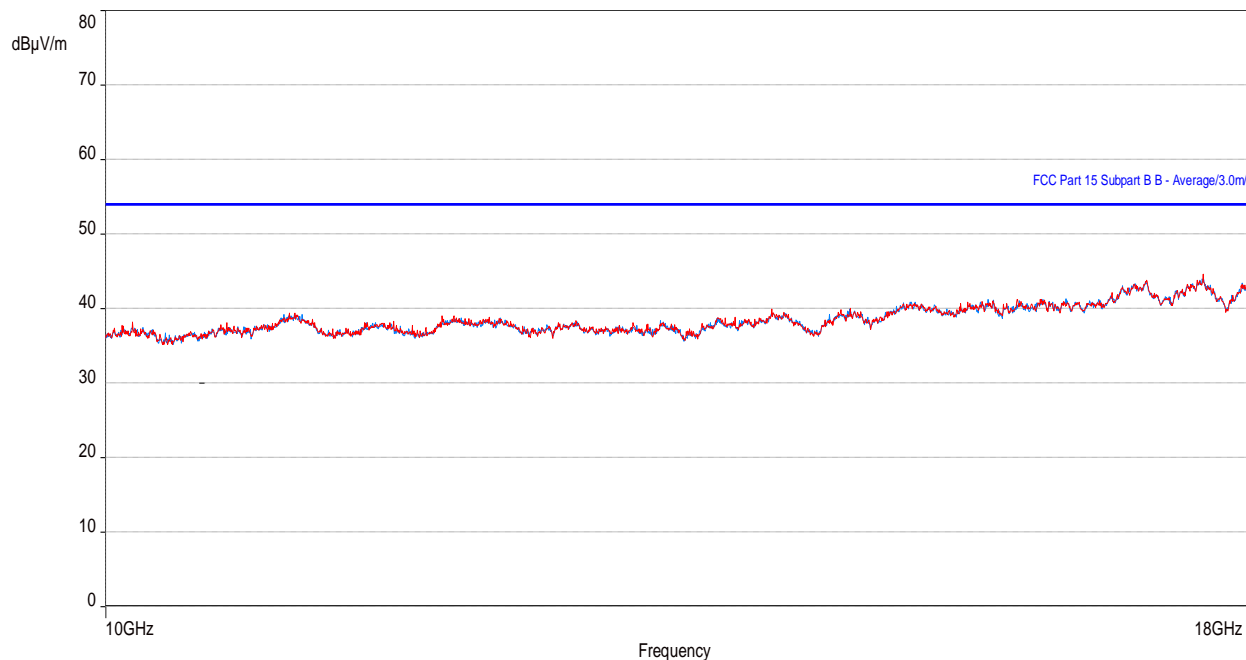
Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

Table 48: RE test results from 1 to 10 GHz for Part 24/27 (S.RAT/S.Carrier – Mid ch – IRU 1649)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.695833	38.03	55.23	-17.20	2.20	30.50	Vertical	-4.17
1159.758974	34.65	55.23	-20.58	2.25	149.25	Horizontal	-4.39
1199.889744	41.41	55.23	-13.82	2.41	206.75	Horizontal	-4.17
1239.708333	32.67	55.23	-22.56	2.41	110.25	Horizontal	-3.53

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.

Figure 28: Plot of RE at 3m from 10 to 18 GHz (S.RAT/S.Carrier – Mid ch – IRU 1649)

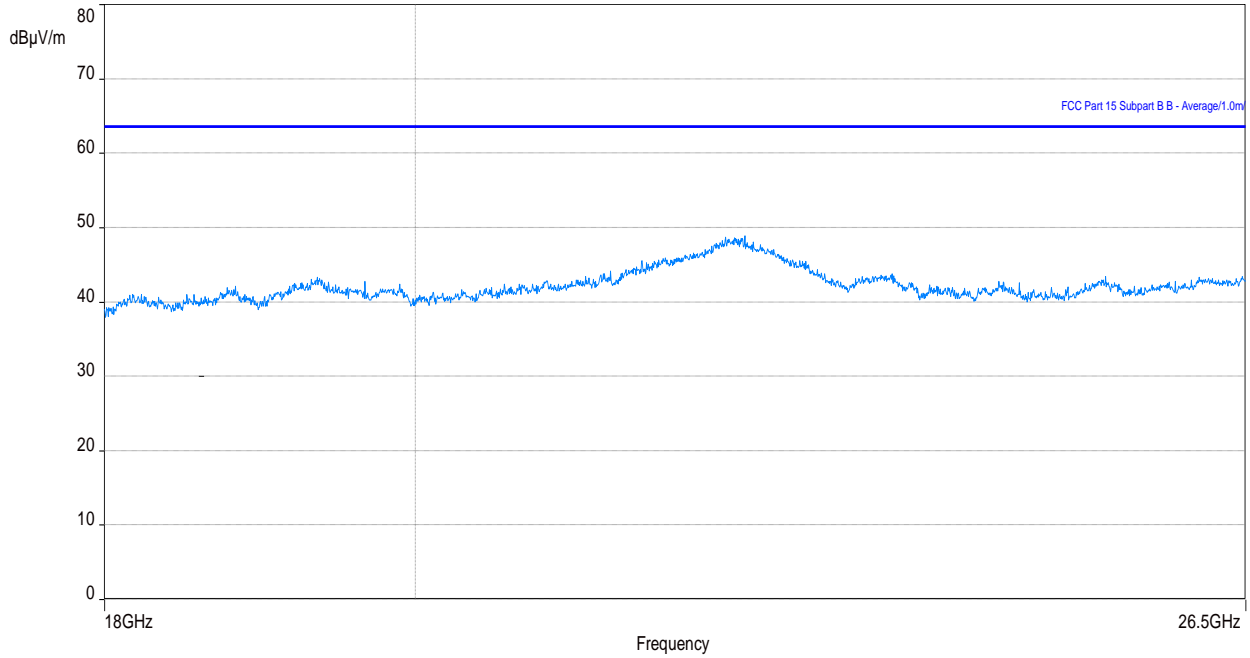


Note 1: In the Plot above, no emissions exceed the FCC Part 15 radiated emissions limit.

Note 2: In the Plot above, no emissions exceed the Part 24/ Part 27/ Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27/Part 96, see antenna port conducted emissions in applicable test report.



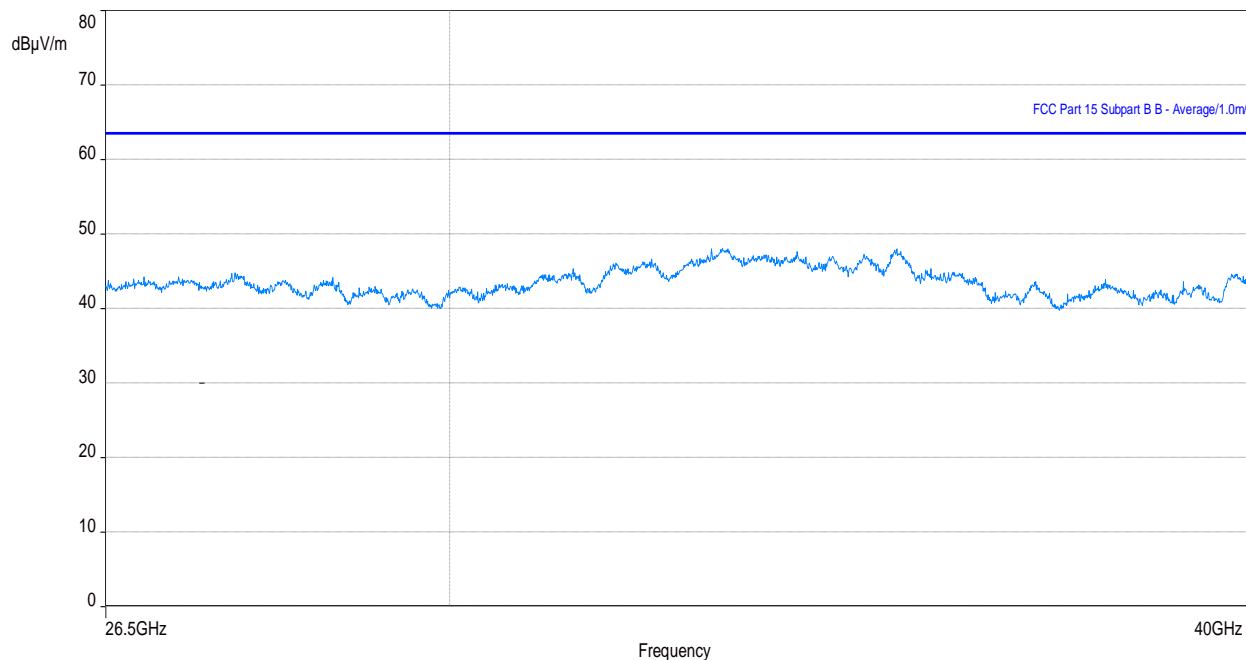
Figure 29: Plot of RE at 1m from 18 to 26.5 GHz (S.RAT/S.Carrier – Mid ch – IRU 1649)



Note 1: In the plot above No Emissions exceeds the FCC Part 15 limit.

Note 2: In the plot above, no emissions exceed the Part 24/27 /96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/27/96, see antenna port conducted emissions in applicable test report.

Figure 30: Plot of RE at 1m from 26.5 to 40 GHz (S.RAT/S.Carrier – Mid ch – IRU 1649)



Note 1: In the plot above No Emissions exceeds the FCC Part 15 limit.

Note 2: In the plot above, no emissions exceed the Part 24/27/96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/27/96, see antenna port conducted emissions in applicable test report.

3.2.13 Test results of RE (Single RAT/Multi carrier – Top & Bot Channel) with IRU 1649

Test location: 10-meter Ambient Free Chamber (AFC)

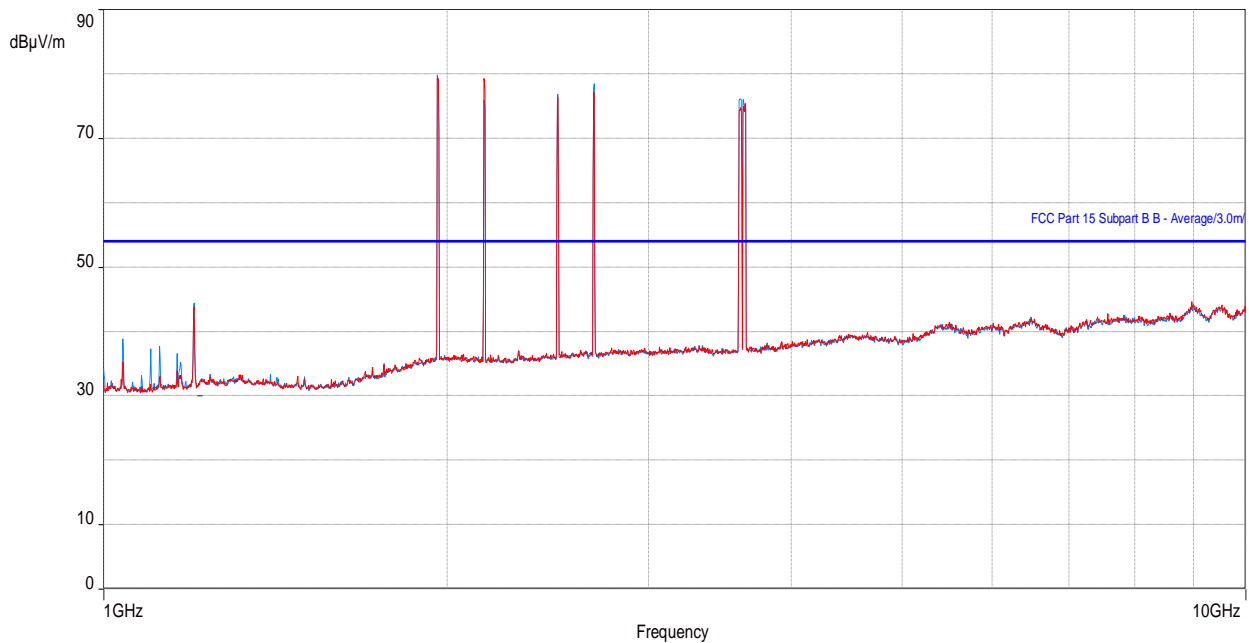
Date tested: 12 - 21 December, 2022

Tested by: Nour El Masri

Test configurations are identified in the sections [Configurations of the EUT & Radiated Emissions Single RAT / Multi Carriers - Non-Contiguous Configs \(IRU 1649\)](#).

For the following test results that have supporting data tables, negative margin values indicate a pass.

Figure 31: Plot of RE at 3m from 1 to 10GHz (S.RAT/ M.Carrier – Top & Bot ch – IRU 1649) – Default SW



Note: Peaks above the limit are leakage of the EUT’s fundamentals from the 50-ohm terminations.

Table 49: RE test results from 1 to 10 GHz for FCC Part 15 (S.RAT/ M.Carrier – Mid ch – IRU 1649)

Frequency (MHz)	Level Average (dBµV/m)	Limit Average (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.811218	38.57	53.96	-15.39	2.09	225.50	Vertical	-4.17
5499.198077	37.63	53.96	-16.33	1.00	8.25	Vertical	7.27
1199.811218	38.69	53.96	-15.27	2.47	348.00	Horizontal	-4.17
5501.915705	37.45	53.96	-16.51	1.00	307.25	Horizontal	7.26



Table 50: RE test results from 1 to 10 GHz for Part 24/27 (S.RAT/M.Carrier – Mid ch – IRU 1649)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.811218	38.57	82.2	-43.63	2.09	225.50	Vertical	-4.17
5499.198077	37.63	82.2	-44.57	1.00	8.25	Vertical	7.27
1199.811218	38.69	82.2	-43.51	2.47	348.00	Horizontal	-4.17
5501.915705	37.45	82.2	-44.75	1.00	307.25	Horizontal	7.26

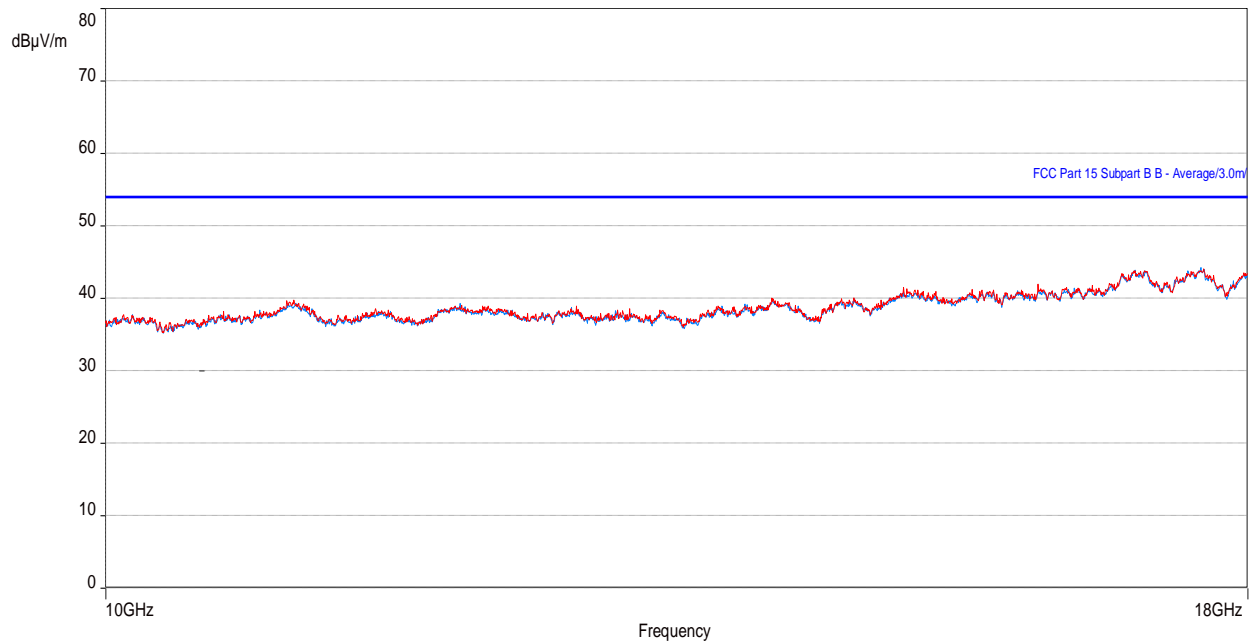
Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

Table 51: RE test results from 1 to 10 GHz for Part 96 (S.RAT/M.Carrier – Mid ch – IRU 1649)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.811218	38.57	55.23	-16.66	2.09	225.50	Vertical	-4.17
5499.198077	37.63	55.23	-17.60	1.00	8.25	Vertical	7.27
1199.811218	38.69	55.23	-16.54	2.47	348.00	Horizontal	-4.17
5501.915705	37.45	55.23	-17.78	1.00	307.25	Horizontal	7.26

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.

Figure 32: Plot of RE at 3m from 10 to 18 GHz (S.RAT/ M.Carrier–Top & Bot ch – IRU 1649) – Default SW

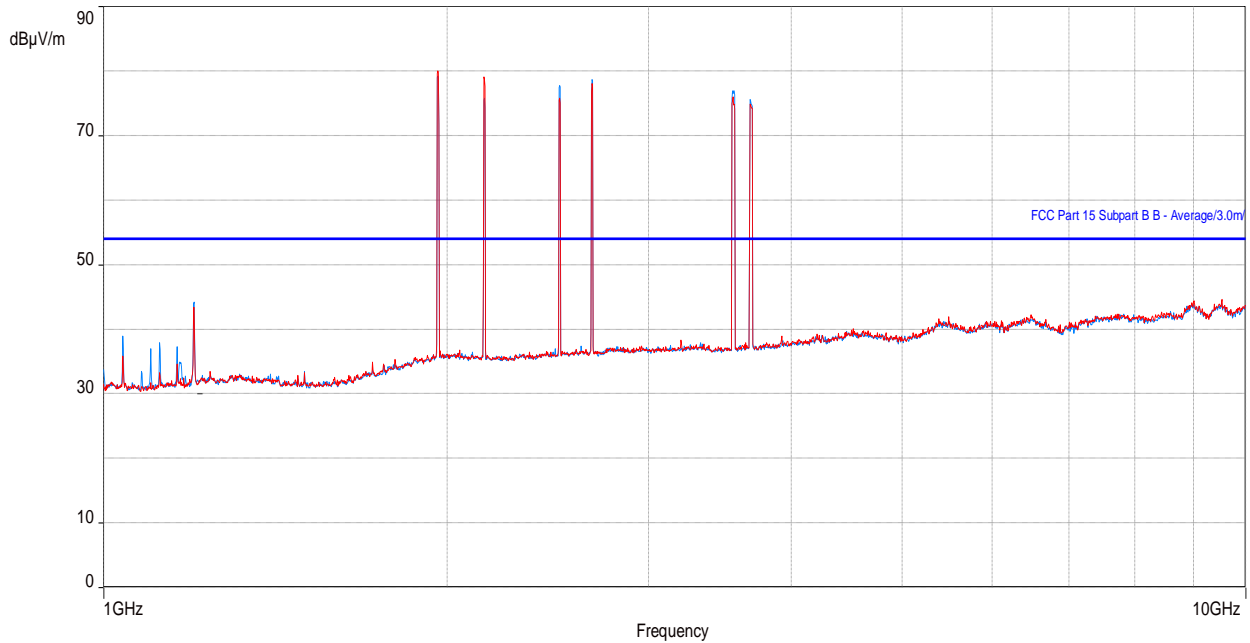


Note 1: In the Plot above, no emissions exceed the FCC Part 15 radiated emissions limit.

Note 2: In the Plot above, no emissions exceed the Part 24/Part 27/Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27//Part 96, see antenna port conducted emissions in applicable test report.



Figure 33: Plot of RE at 3m from 1 to 10GHz (S.RAT/ M.Carrier – Top & Bot ch – IRU 1649) – New SW



Note: Peaks above the limit are leakage of the EUT’s fundamentals from the 50-ohm terminations.

Table 52: RE test results from 1 to 10 GHz for FCC Part 15 (S.RAT/ M.Carrier – Top & Bot ch – IRU 1649)

Frequency (MHz)	Level Average (dBµV/m)	Limit Average (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.933013	38.88	53.96	-15.08	2.47	18.75	Horizontal	-4.17
1199.788782	38.38	53.96	-15.58	2.09	66.50	Vertical	-4.17
5498.060256	37.62	53.96	-16.34	1.00	52.50	Vertical	7.27
5501.56891	37.39	53.96	-16.57	1.00	0.00	Horizontal	7.27



Table 53: RE test results from 1 to 10 GHz for Part 24/27 (S.RAT/M.Carrier – Top & Bot – IRU 1649)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.933013	38.88	82.2	-43.32	2.47	18.75	Horizontal	-4.17
1199.788782	38.38	82.2	-43.82	2.09	66.50	Vertical	-4.17
5498.060256	37.62	82.2	-44.58	1.00	52.50	Vertical	7.27
5501.56891	37.39	82.2	-44.81	1.00	0.00	Horizontal	7.27

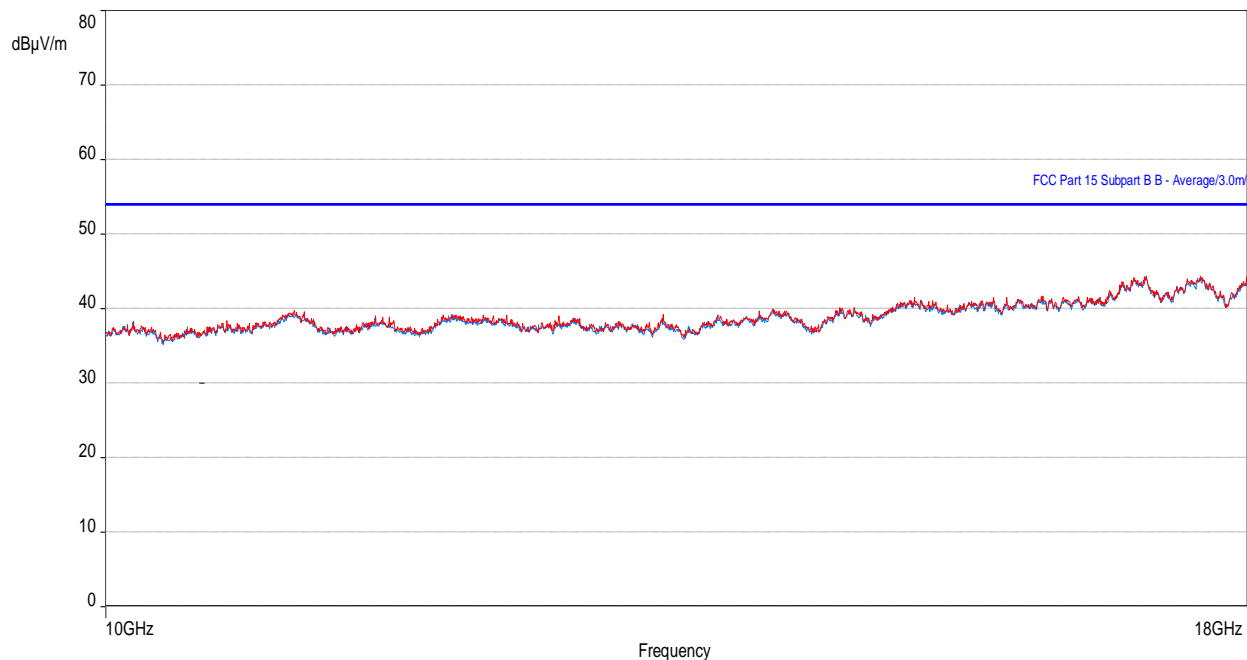
Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

Table 54: RE test results from 1 to 10 GHz for Part 96 (S.RAT/M.Carrier – Top & Bot – IRU 1649)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.933013	38.88	55.23	-16.35	2.47	18.75	Horizontal	-4.17
1199.788782	38.38	55.23	-16.85	2.09	66.50	Vertical	-4.17
5498.060256	37.62	55.23	-17.61	1.00	52.50	Vertical	7.27
5501.56891	37.39	55.23	-17.84	1.00	0.00	Horizontal	7.27

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.

Figure 34: Plot of RE at 3m from 10 to 18 GHz (S.RAT/ M.Carrier-Top & Bot ch – IRU 1649) – New SW



Note 1: In the Plot above, no emissions exceed the FCC Part 15 radiated emissions limit.

Note 2: In the Plot above, no emissions exceed the Part 24/Part 27/Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27//Part 96, see antenna port conducted emissions in applicable test report.

3.2.14 Test results of RE (Multi RAT/Multi carrier - Middle channel) with IRU 1649

Test location: 10-meter Ambient Free Chamber (AFC)

Date tested: 12 - 21 December, 2022

Tested by: Nour El Masri

Test configurations are identified in the sections [Configurations of the EUT & Radiated Emissions Multi RAT/Multi Carriers - Non-Contiguous Configs \(IRU 1649\)](#).

For the following test results that have supporting data tables, negative margin values indicate a pass.

Figure 35: Plot of RE at 3 m – 30 to 1000 MHz (M.RAT / M.Carrier – Mid ch – IRU 1649) – Default SW

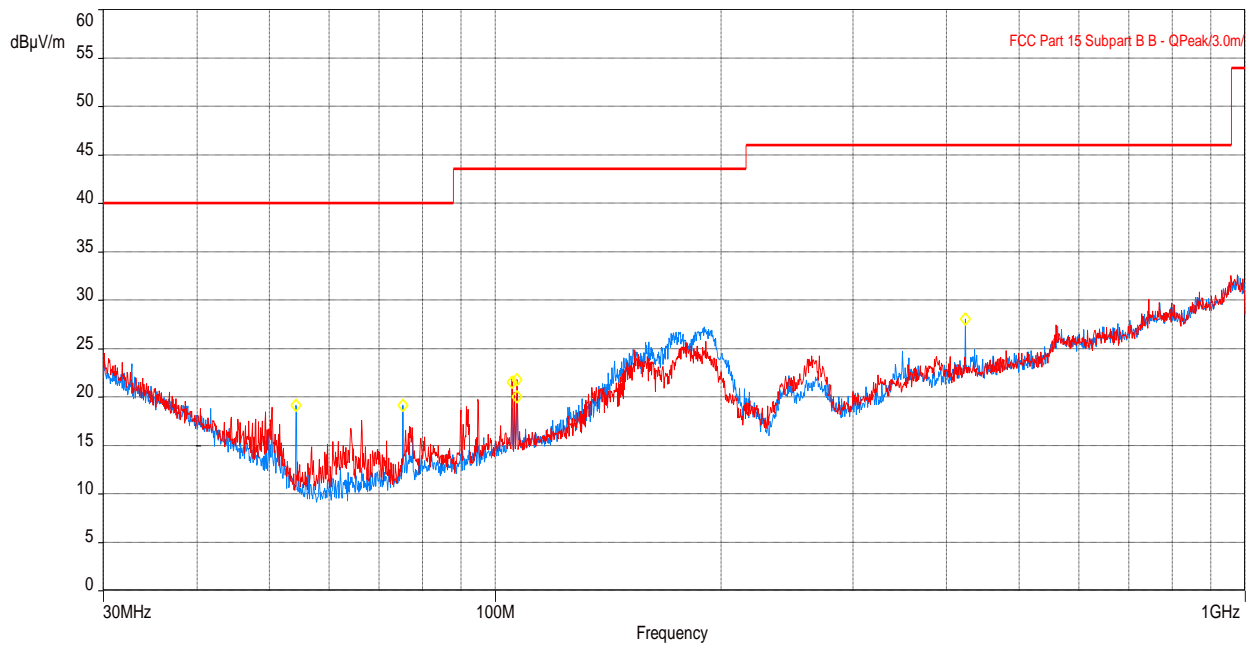


Table 55: RE test results from 30 to 1000 MHz for FCC Part 15 (M.RAT/M.Carrier–Mid ch–IRU 1649)

Frequency (MHz)	Level Quasi Peak (dBµV/m)	Limit Quasi-peak (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
105.3089774	19.67	43.52	-23.85	1.00	304.50	Vertical	-9.54
106.9361059	21.66	43.52	-21.86	1.05	311.75	Vertical	-9.37
106.9499646	20.52	43.52	-23.00	1.34	341.00	Horizontal	-9.36
423.4083238	18.99	46.02	-27.03	1.96	304.50	Horizontal	-2.10



Table 56: RE test results from 30 to 1000 MHz for FCC Part 24/27 (M.RAT/M.Carrier–Mid ch–IRU 1649)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
105.3089774	19.67	82.2	-62.53	1.00	304.50	Vertical	-9.54
106.9361059	21.66	82.2	-60.54	1.05	311.75	Vertical	-9.37
106.9499646	20.52	82.2	-61.68	1.34	341.00	Horizontal	-9.36
423.4083238	18.99	82.2	-63.21	1.96	304.50	Horizontal	-2.10

Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

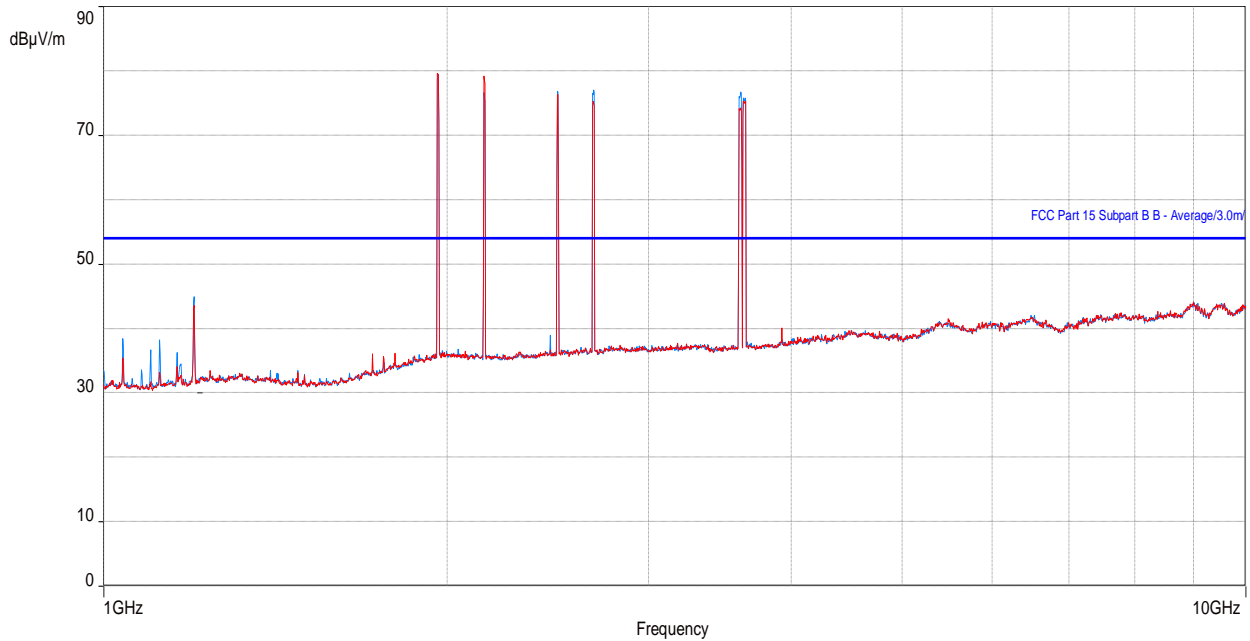
Table 57: RE test results from 30 to 1000 MHz for FCC Part 96 (M.RAT/M.Carrier–Mid ch–IRU 1649)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
105.3089774	19.67	55.23	-35.56	1.00	304.50	Vertical	-9.54
106.9361059	21.66	55.23	-33.57	1.05	311.75	Vertical	-9.37
106.9499646	20.52	55.23	-34.71	1.34	341.00	Horizontal	-9.36
423.4083238	18.99	55.23	-63.21	1.96	304.50	Horizontal	-2.10

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.



Figure 36: Plot of RE at 3m from 1 to 10GHz (M.RAT/ M.Carrier – Mid ch – IRU 1649) – Default SW



Note: Peaks above the limit are leakage of the EUT’s fundamentals from the 50-ohm terminations.

Table 58: RE test results from 1 to 10 GHz for FCC Part 15 (M.RAT/M.Carrier–Mid ch–IRU 1649)

Frequency (MHz)	Level Average (dBµV/m)	Limit Average (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1200.037179	38.59	53.96	-15.37	2.09	141.75	Vertical	-4.17
5489.437179	37.36	53.96	-16.60	1.00	360.00	Vertical	7.25
1199.767949	38.51	53.96	-15.45	2.47	336.75	Horizontal	-4.17
5393.833654	36.93	53.96	-17.03	3.17	279.00	Horizontal	6.95



Table 59: RE test results from 1 to 10 GHz for Part 24/27 (M.RAT/M.Carrier – Mid ch – IRU 1649)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1200.037179	38.59	82.2	-43.61	2.09	141.75	Vertical	-4.17
5489.437179	37.36	82.2	-44.84	1.00	360.00	Vertical	7.25
1199.767949	38.51	82.2	-43.69	2.47	336.75	Horizontal	-4.17
5393.833654	36.93	82.2	-45.27	3.17	279.00	Horizontal	6.95

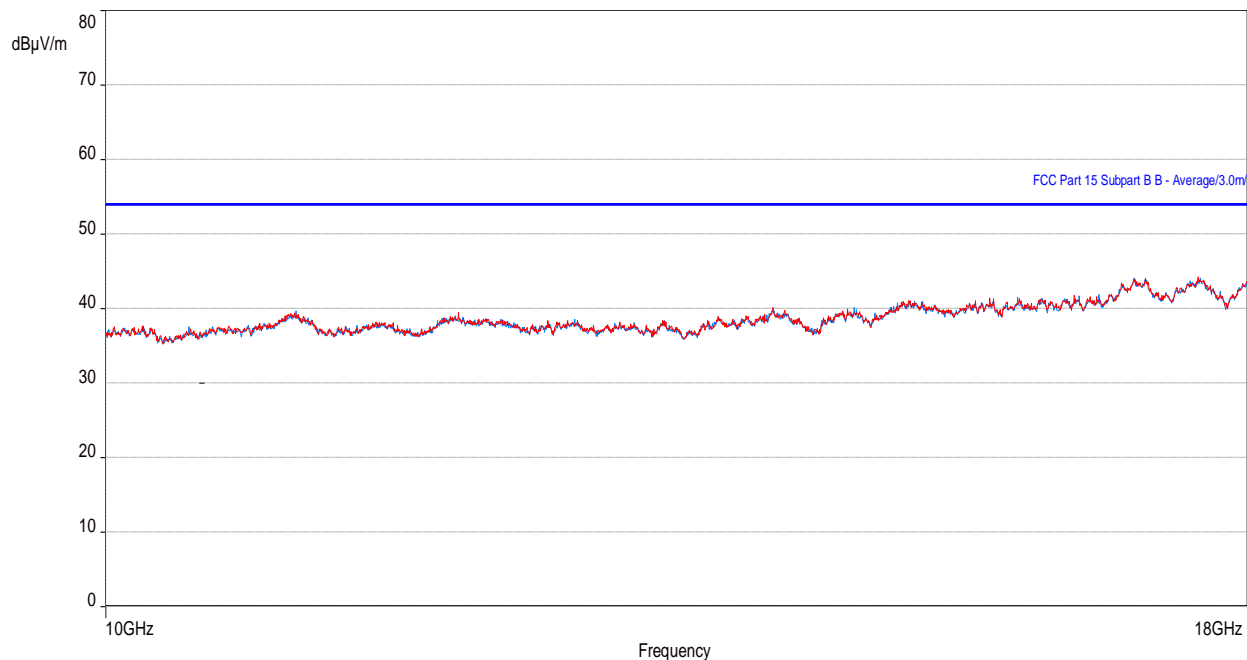
Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

Table 60: RE test results from 1 to 10 GHz for Part 96 (M.RAT/M.Carrier – Mid ch – IRU 1649)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1200.037179	38.59	55.23	-16.64	2.09	141.75	Vertical	-4.17
5489.437179	37.36	55.23	-17.87	1.00	360.00	Vertical	7.25
1199.767949	38.51	55.23	-16.72	2.47	336.75	Horizontal	-4.17
5393.833654	36.93	55.23	-18.30	3.17	279.00	Horizontal	6.95

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.

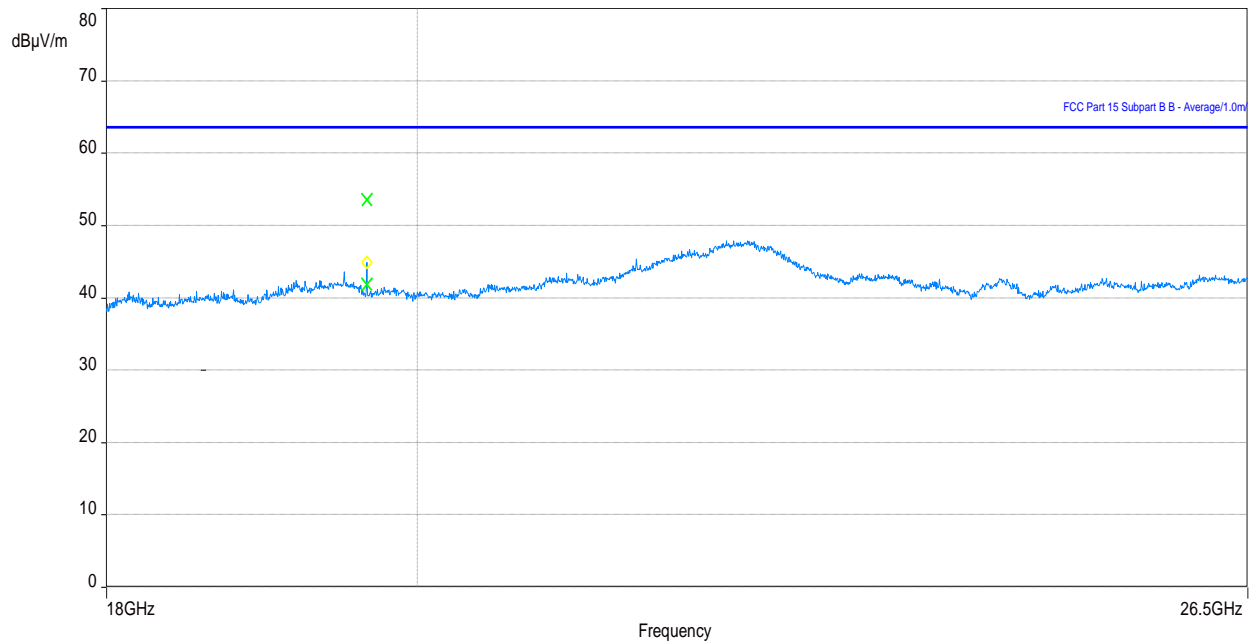
Figure 37: Plot of RE at 3m from 10 to 18 GHz (M.RAT/M.Carrier – Mid ch – IRU 1649) – Default SW



Note 1: In the Plot above, no emissions exceed the FCC Part 15 radiated emissions limit.

Note 2: In the Plot above, no emissions exceed the Part 24/Part 27/Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27/Part 96, see antenna port conducted emissions in applicable test report.

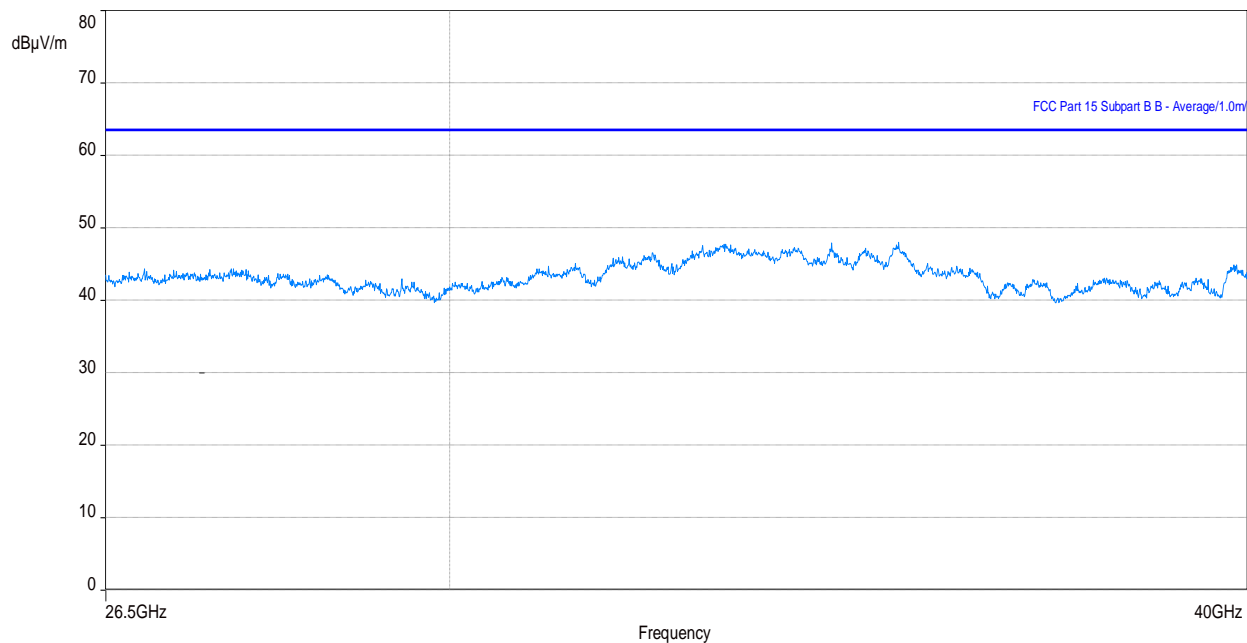
Figure 38: Plot of RE at 1m from 18 to 26.5 GHz (M.RAT/M.Carrier – Mid ch – IRU 1649) – Default SW



Note 1: In the plot above No Emissions exceeds the FCC Part 15 limit.

Note 2: In the plot above, no emissions exceed the Part 24/27/96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/27/96, see antenna port conducted emissions in applicable test report.

Figure 39: Plot of RE at 1m from 26.5 to 40 GHz (M.RAT/M.Carrier – Mid ch – IRU 1649) – Default SW



Note 1: In the plot above No Emissions exceeds the FCC Part 15 limit.

Note 2: In the plot above, no emissions exceed the Part 24/27/96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/27/96, see antenna port conducted emissions in applicable test report.

Figure 40: Plot of RE at 3 m – 30 to 1000 MHz (M.RAT / M.Carrier – Mid ch – IRU 1649) – New SW

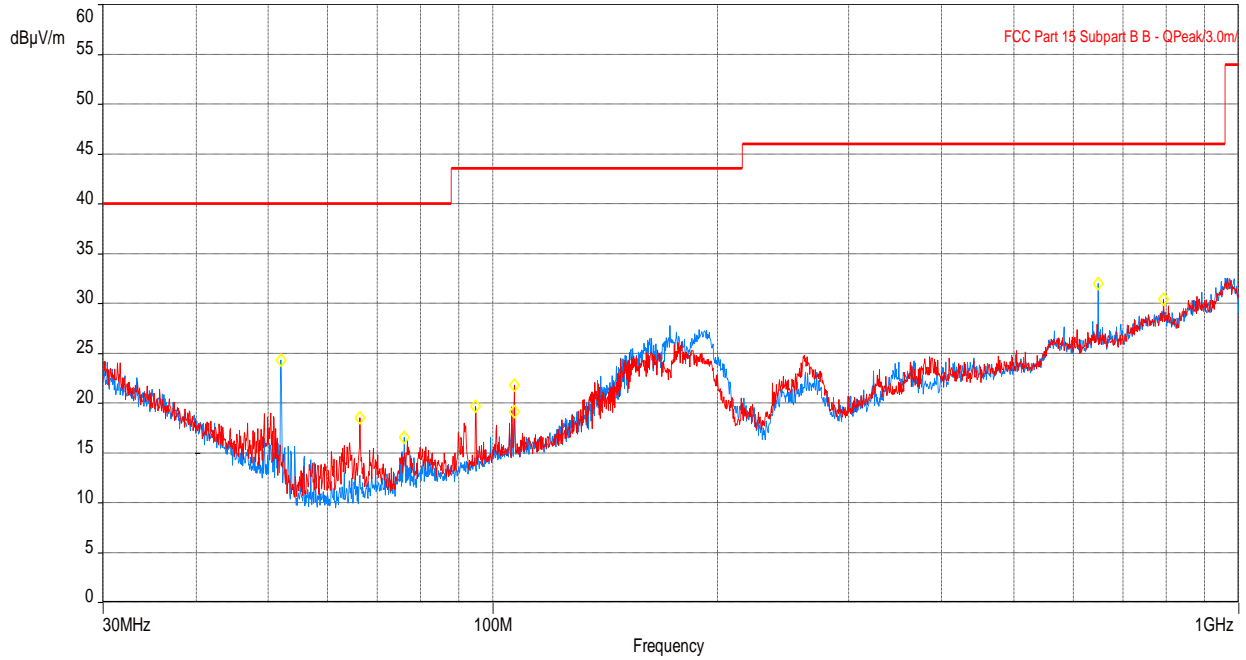


Table 61: RE test results from 30 to 1000 MHz for FCC Part 15 (M.RAT/M.Carrier–Mid ch–IRU 1649)

Frequency (MHz)	Level Quasi Peak (dBµV/m)	Limit Quasi-peak (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
66.35709008	17.11	40.00	-22.89	1.52	100.00	Vertical	-14.55
106.8624197	18.59	43.52	-24.93	1.15	312.75	Vertical	-9.37
792.7987469	23.17	46.02	-22.85	2.48	75.00	Vertical	4.56
106.9133077	18.33	43.52	-25.19	1.23	348.00	Horizontal	-9.37
648.2365354	21.12	46.02	-24.90	2.33	139.00	Horizontal	2.07



Table 62: RE test results from 30 to 1000 MHz for FCC Part 24/27 (M.RAT/M.Carrier–Mid ch–IRU 1649)

Frequency (MHz)	Level (dBμV/m)	EIRP Limit (dBμV/m)	Margin to (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
66.35709008	17.11	82.2	-65.09	1.52	100.00	Vertical	-14.55
106.8624197	18.59	82.2	-63.61	1.15	312.75	Vertical	-9.37
792.7987469	23.17	82.2	-59.03	2.48	75.00	Vertical	4.56
106.9133077	18.33	82.2	-63.87	1.23	348.00	Horizontal	-9.37
648.2365354	21.12	82.2	-61.08	2.33	139.00	Horizontal	2.07

Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

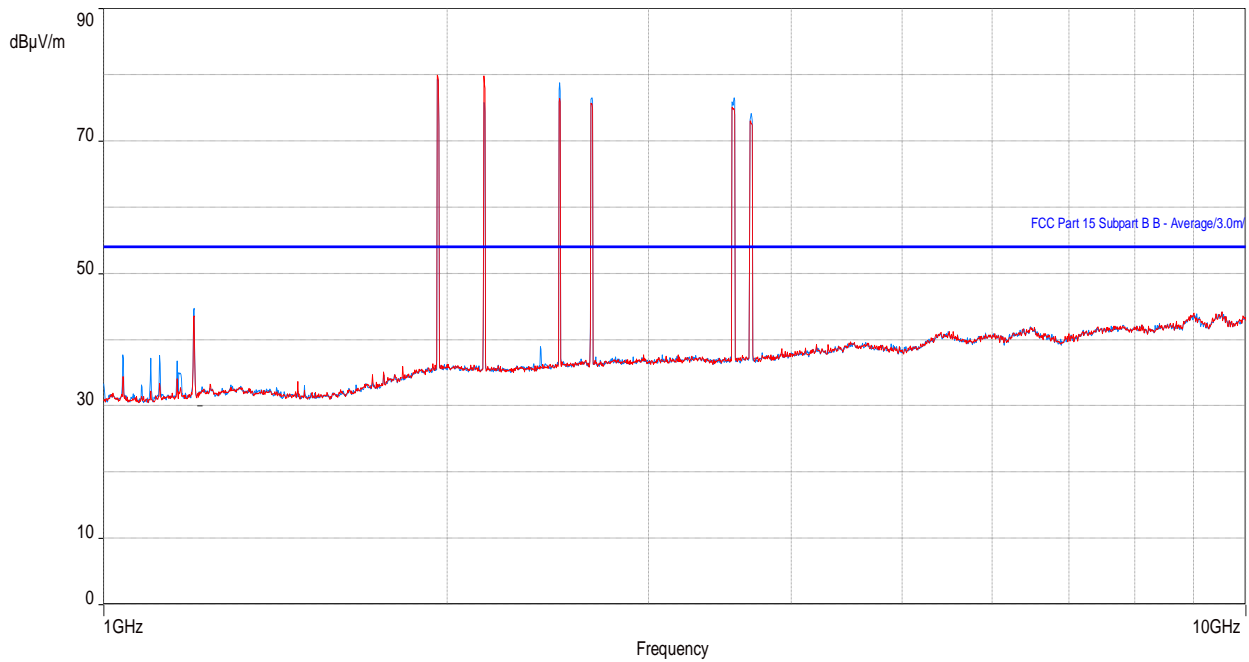
Table 63: RE test results from 30 to 1000 MHz for FCC Part 96 (M.RAT/M.Carrier–Mid ch–IRU 1649)

Frequency (MHz)	Level (dBμV/m)	EIRP Limit (dBμV/m)	Margin to (dB)	Height (m)	Azimuth (deg)	Polarization	Correction (dB)
66.35709008	17.11	55.23	-38.12	1.52	100.00	Vertical	-14.55
106.8624197	18.59	55.23	-36.64	1.15	312.75	Vertical	-9.37
792.7987469	23.17	55.23	-32.06	2.48	75.00	Vertical	4.56
106.9133077	18.33	55.23	-36.90	1.23	348.00	Horizontal	-9.37
648.2365354	21.12	55.23	-34.11	2.33	139.00	Horizontal	2.07

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.



Figure 41: Plot of RE at 3m from 1 to 10GHz (M.RAT/ M.Carrier – Mid ch – IRU 1649) – New SW



Note: Peaks above the limit are leakage of the EUT’s fundamentals from the 50-ohm terminations.

Table 64: RE test results from 1 to 10 GHz for FCC Part 15 (M.RAT/M.Carrier–Mid ch–IRU 1649)

Frequency (MHz)	Level Average (dBµV/m)	Limit Average (dBµV/m)	Margin to FCC part 15 Class B (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.811538	38.42	53.96	-15.54	2.09	66.75	Vertical	-4.17
1200.029167	38.85	53.96	-15.11	2.47	18.75	Horizontal	-4.17
5491.370833	37.42	53.96	-16.54	1.00	160.50	Horizontal	7.26
5500.591987	37.49	53.96	-16.47	1.00	9.00	Vertical	7.27



Table 65: RE test results from 1 to 10 GHz for Part 24/27 (M.RAT/M.Carrier – Mid ch – IRU 1649)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.811538	38.42	82.2	-43.78	2.09	66.75	Vertical	-4.17
1200.029167	38.85	82.2	-43.35	2.47	18.75	Horizontal	-4.17
5491.370833	37.42	82.2	-44.78	1.00	160.50	Horizontal	7.26
5500.591987	37.49	82.2	-44.71	1.00	9.00	Vertical	7.27

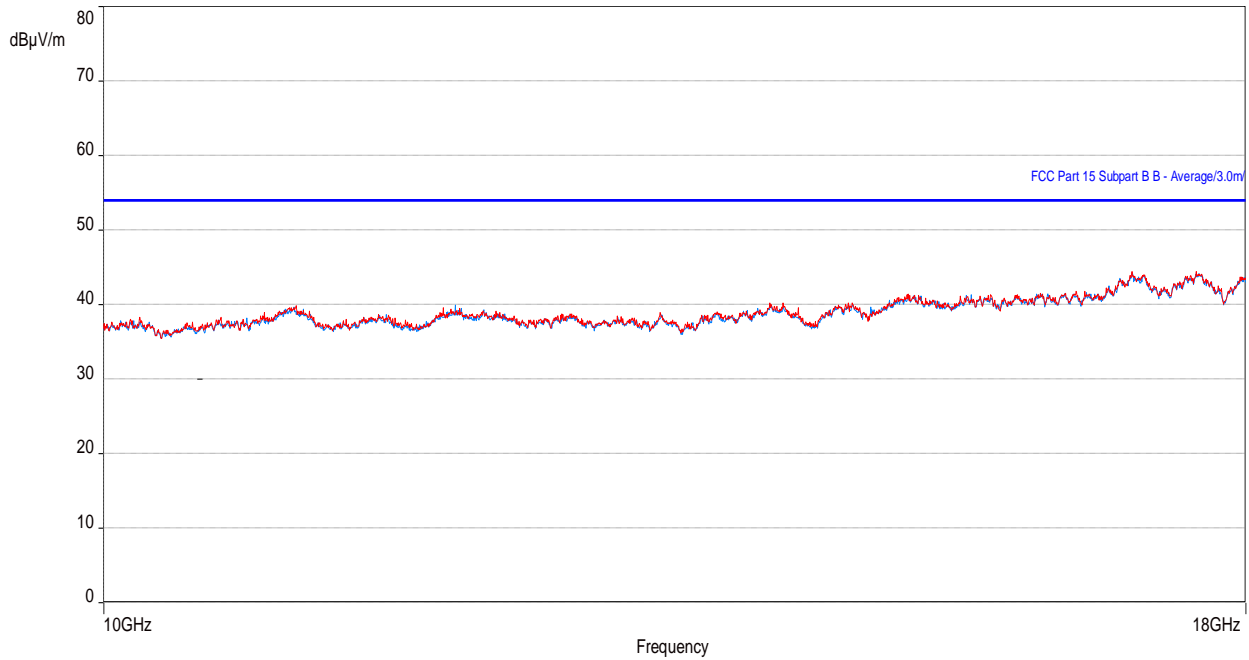
Note: In the table/Plot above, no emissions exceed the Part 24/Part 27 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 24/Part 27, see antenna port conducted emissions in applicable test report.

Table 66: RE test results from 1 to 10 GHz for Part 96 (M.RAT/M.Carrier – Mid ch – IRU 1649)

Frequency (MHz)	Level (dBµV/m)	EIRP Limit (dBµV/m)	Margin to (dB)	Height (m)	Azimuth (degrees)	Polarization	Correction (dB)
1199.811538	38.42	55.23	-16.81	2.09	66.75	Vertical	-4.17
1200.029167	38.85	55.23	-16.38	2.47	18.75	Horizontal	-4.17
5491.370833	37.42	55.23	-17.81	1.00	160.50	Horizontal	7.26
5500.591987	37.49	55.23	-17.74	1.00	9.00	Vertical	7.27

Note: In the table/Plot above, no emissions exceed the Part 96 radiated spurious emissions limit when converted to dBuV/m, except for the fundamentals. For final spurious emissions measurements to FCC Part 96, see antenna port conducted emissions in applicable test report.

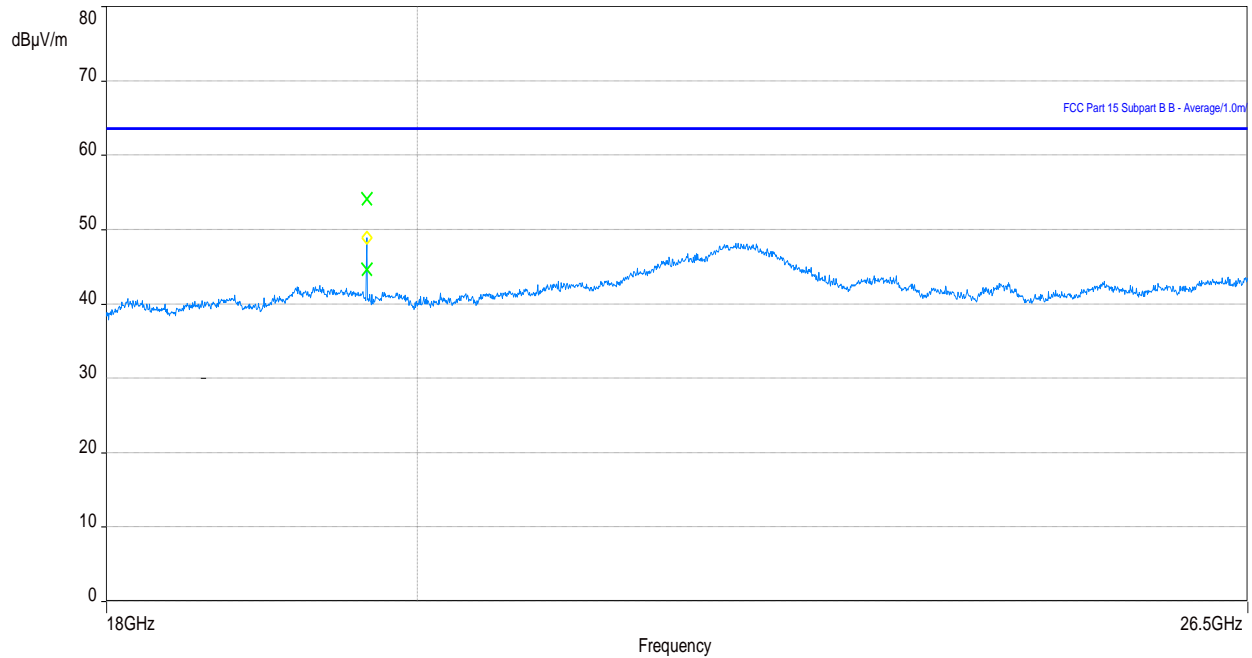
Figure 42: Plot of RE at 3m from 10 to 18 GHz (M.RAT/M.Carrier – Mid ch – IRU 1649) – New SW



Note 1: In the Plot above, no emissions exceed the FCC Part 15 radiated emissions limit.

Note 2: In the Plot above, no emissions exceed the Part 24/Part 27/Part 96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/Part 27/Part 96, see antenna port conducted emissions in applicable test report.

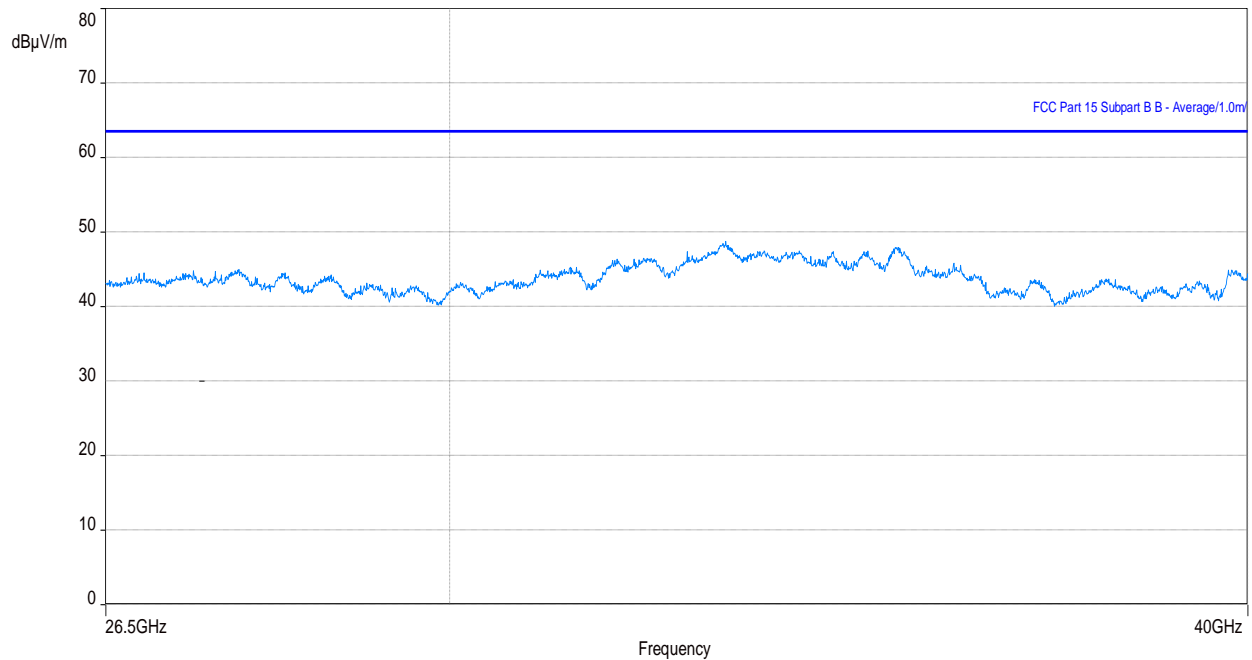
Figure 43: Plot of RE at 1m from 18 to 26.5 GHz (M.RAT/M.Carrier – Mid ch – IRU 1649) – New SW



Note 1: In the plot above No Emissions exceeds the FCC Part 15 limit.

Note 2: In the plot above, no emissions exceed the Part 24/27/96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/27/96, see antenna port conducted emissions in applicable test report.

Figure 44: Plot of RE at 1m from 26.5 to 40 GHz (M.RAT/M.Carrier – Mid ch – IRU 1649) – New SW



Note 1: In the plot above No Emissions exceeds the FCC Part 15 limit.

Note 2: In the plot above, no emissions exceed the Part 24/27/96 radiated spurious emissions limit when converted to dBuV/m. For final spurious emissions measurements to FCC Part 24/27/96, see antenna port conducted emissions in applicable test report.

3.2.15 Radiated Emissions test setup pictures

Figure 45: EUT Setup for RE tests (Closeup) – (Configuration 1 - with IRU 1648)

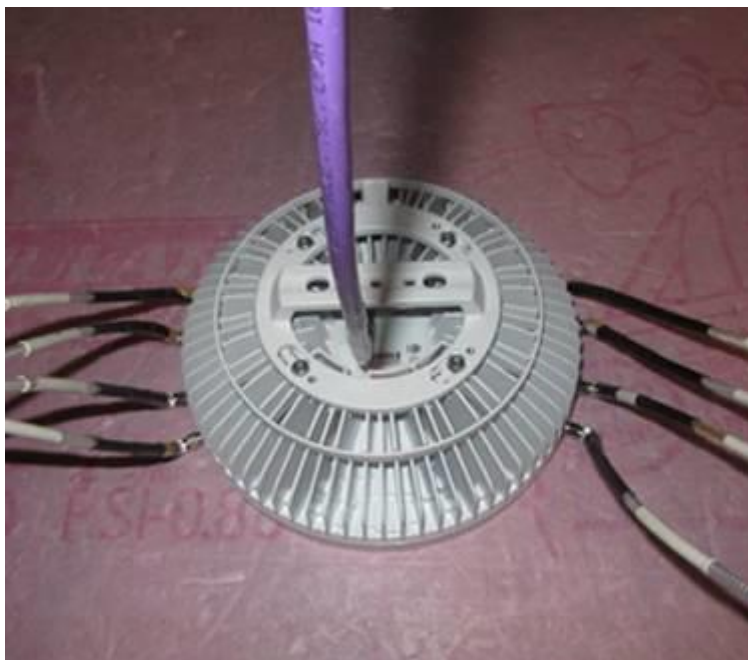


Figure 46: EUT Setup for RE tests (Closeup) – (Configuration 2 - with IRU 1649)

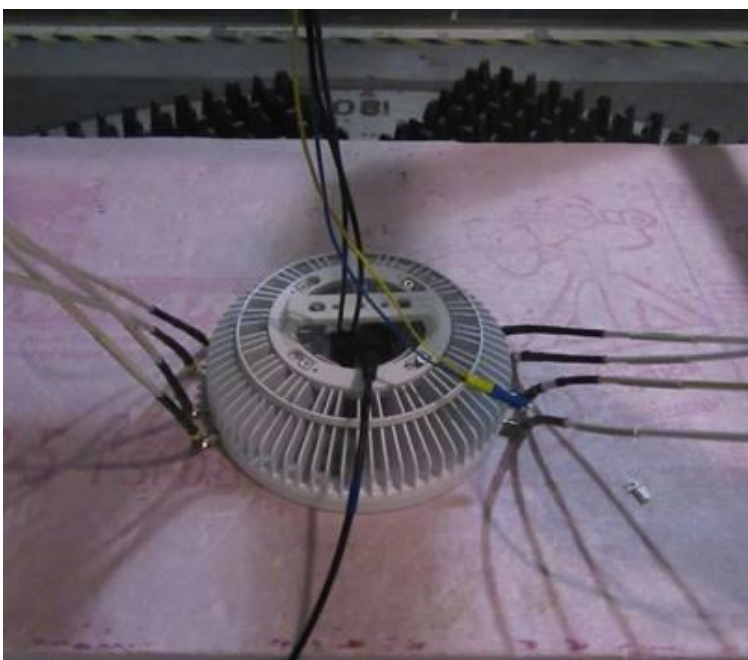


Figure 47: EUT Setup for RE tests at 30 MHz to 1 GHz

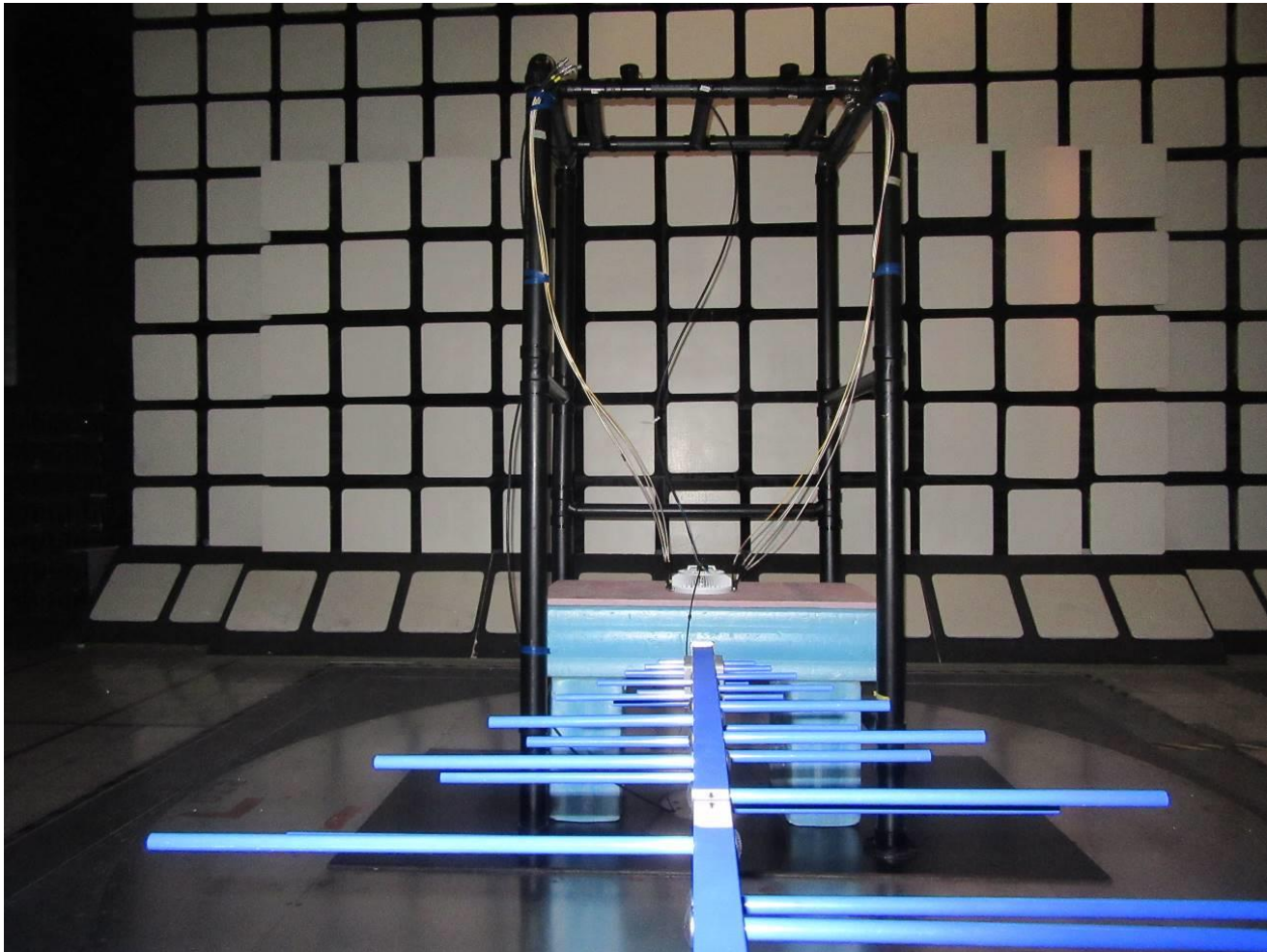
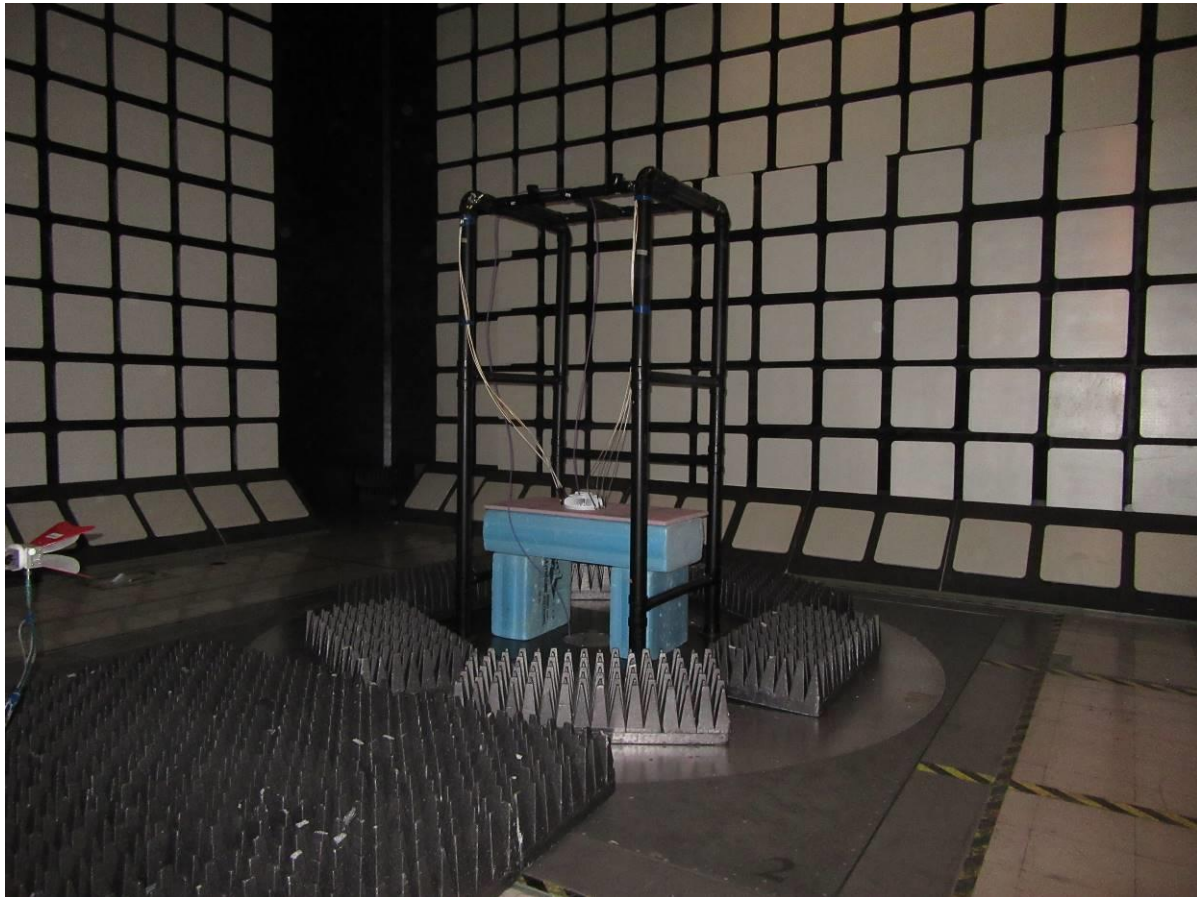


Figure 48: EUT Setup for RE tests for above 1 GHz





3.2.16 Test equipment

The equipment used for E-field RE testing was as follows.

Table 67: Test equipment used for RE

Description	Make	Model number	Asset ID	Calibr. date	Calibr. due
EMC Automation Software	Nexio V3.18	BAT-EMC	F0163649	Not required	
EMI Receiver	Rohde & Schwarz	ESU26	SSG013729	2022-05-02	2024-04-02
EMI Receiver	Rohde & Schwarz	ESU40	SSG013672	2022-01-14	2024-01-14
Coaxial Cable	Huber & Suhner	104PEA	SSG012041	2022-01-12	2023-01-13
Coaxial Cable	Huber & Suhner	106A	SSG012711	2022-02-04	2023-02-05
Coaxial Cable	Micro-Coax	UFA 210B-1-1500-504504	SSG012376	2022-01-28	2023-01-28
Coaxial Cable	Huber & Suhner	ST18/Nm/Nm/36	SSG012785	2022-01-28	2024-01-28
Bilog Antenna	Teseq	6111D	SSG013955	2022-01-20	2023-01-20
Double Ridged Horn Antenna	Emco	3115	SSG012298	2022-04-01	2024-04-01
Pre-amp 18-40G	microComp Nordie	MCN-40-18004000-3.3-10P	SSG014000	2021-11-04	2023-11-04
Pre-Amplifier	BNR	LNA	SSG012594	2022-05-16	2023-05-16
RF Amplifier	Hewlett Packard	8447D	SSG013045	2022-05-05	2024-05-05

3.2.17 Test conclusion

The DOT 2256 B48B41B25B66 (KRY 901 537/1) and DOT 2266 B48B41B25B66 (KRY 901 537/2) have passed the E-field Radiated Emission (RE) tests with respect to the standards/sections listed in section [Executive summary](#).

4. References

The documents, regulations, and standards that are referenced throughout this test report are listed alphabetically as follows.

1. ANSI C63.2-2009, American National Standards Institute for Electromagnetic Noise and Field Strength Instrumentation, 10 Hz to 40 GHz – Specifications.
2. ANSI C63.4-2014, American National Standards Institute for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
3. CISPR 16 Publications (all parts and sections), Specification for Radio Disturbance and Immunity Measuring Apparatus and Methods - Part 1: Radio Disturbance and Immunity Measuring Apparatus.
4. CISPR 22 (2008, +IS 1, + IS 2, + IS 3: 2012), Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement.
5. FCC Rules for Radio Frequency Devices, Title 47 of the Code of Federal Regulations, Part 2, U.S. Federal Communications Commission.
6. FCC Rules for Radio Frequency Devices, Title 47 of the Code of Federal Regulations, Part 15 Radio Frequency Devices, U.S. Federal Communications Commission.
7. FCC Rules for Radio Frequency Devices, Title 47 of the Code of Federal Regulations, Part 24 – PERSONAL COMMUNICATIONS SERVICES, U.S. Federal Communications Commission.
8. FCC Rules for Radio Frequency Devices, Title 47 of the Code of Federal Regulations, Part 27 Miscellaneous Wireless Communications Services, U.S. Federal Communications Commission.
9. FCC Rules for Radio Frequency Devices, Title 47 of the Code of Federal Regulations, Part 96 Citizens Broadband Radio Service, U.S. Federal Communications Commission.

4.1 Appendix A: Abbreviations

The abbreviations of terms used in this document are as follows.

Term	Definition
A	6 dB Coaxial Attenuator (Conducted Immunity)
AAN	Asymmetric Artificial Network (ISN)
AE	Auxiliary equipment
AFC	Ambient Free Chamber
ANSI	American National Standards Institute
AVG	Average detector
BiLog	Biconical Log-Periodic Hybrid antenna (a registered trademark of Schaffner-Chase EMC Limited, 1993)
CDN	Coupling-decoupling Network
CE	Conducted Emissions
CISPR	Comité International Spécial Perturbation Radioélectrique (International Special Committee on Radio Interference)
CSA	Canadian Standards Association
DN/P	Decoupling / Protection Network
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
ETSI	European Telecommunications Standards Institute
EUT	equipment under test
GND	Ground
HCP	Horizontal Coupling Plane
HME	Harmonics Measurement Equipment
HV	High Voltage
HVP	High Voltage Probe
h/w	hardware
IC	Industry Canada
ICES	Canadian Specification: ICES-003, Issue 3, "Spectrum Management: Interference-causing equipment standard (Digital Apparatus)
IEC	International Electro Technical Association
ISN	Impedance Stabilization Network
LISN	Line Impedance Stabilization Network
ms	millisecond, unless otherwise specified
NA, na	not applicable



Term	Definition
PA	Broadband Power Amplifier
PK	Peak Detector
PS	Power Supply
QP	Quasi-peak Detector
QPA	Quasi-peak Adapter (for the Spectrum Analyzer)
R	100-ohm Injection Resistor (Conducted Immunity)
RBW	Resolution Bandwidth
RE	Radiated Emissions
RF	Radio-Frequency
RI	Radiated Immunity
RMS	Root-mean-square
s/w	software
SA	Spectrum Analyzer, the CISPR 16, ANSI C63.2 Compliant EMI meter
STP	Shielded Twisted Pair
T	50-ohm Coaxial Termination (Conducted Emissions / Immunity)
TL	Transient Limiter
UFA	Uniform field Area
VBW	Video Bandwidth



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End of Document