

Annex 1: Measurement diagrams 21-1-0185701T08a-A1

Number of pages:	9	Date of Report:	2022-Nov-16
Testing company:	CETECOM GmbH Im Teelbruch 116 45219 Essen Germany Tel. + 49 (0) 20 54 / 95 19-0 Fax: + 49 (0) 20 54 / 95 19-150	Applicant:	Wapice Oy
Product: Model:	IOT Device WRM247LTE		
FCC ID:	FCC ID: 2A8VL-WRM247LTE Contains FCC ID: QIPPLS63-W Contains FCC ID: TFB-1003	IC:	Contains IC ID: 7830A-PLS63W Contains IC ID: 5969A-1003
Testing has been carried out in accordance with:	FCC Regulations Title 47 CFR, Chapter I, Subchapter A, Part 15 Subpart B Unintentional Radiators § 15.107 Conducted limits § 15.109 Radiated emission limits ISED-Regulations Radio Standards Specification RSS-Gen, Issue 5 General Requirements for Compliance of Radio Apparatus ICES-003, Issue 7 Information Technology Equipment (including Digital Apparatus)		



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1 Measurement diagrams

1.01

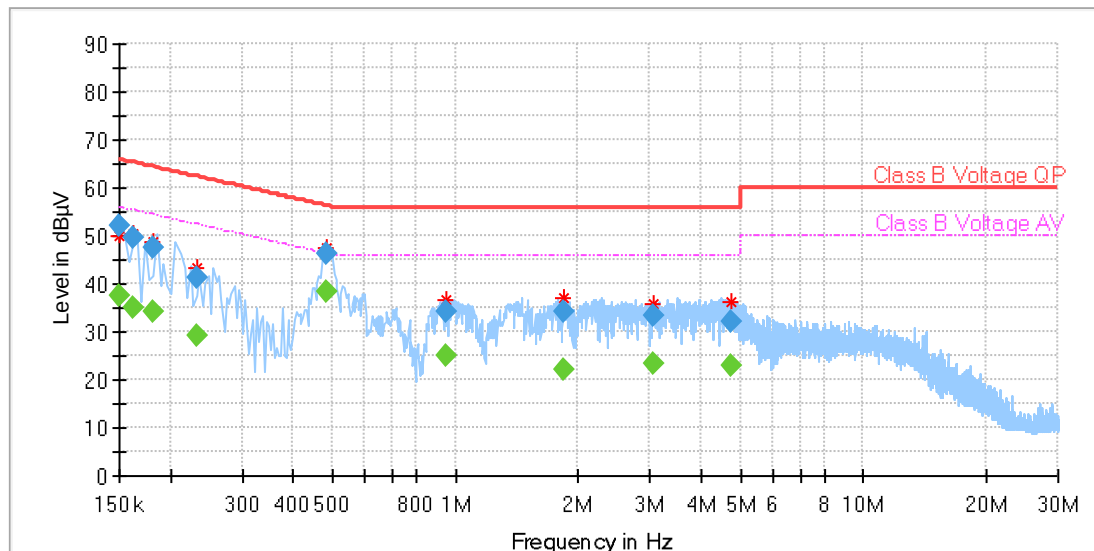
Common Information

Test Description:	Conducted Voltage Measurement Class B
Test Site Location:	Conducted Emission, CETECOM GmbH Essen
Test Software:	R&S EMC32 v9.15
Test Standard:	FCC 15.107, FCC 15.207
Operating Mode:	CAN + Ethernet + GNSS receiver
Measured on line:	N/L1
Diagram details:	Shows the peak values as a sum of measured ports in maxhold mode
Environmental Conditions:	Humidity: 25 %rH; Temperature: 38°C
Operator:	HLa
Verdict:	Passed

EUT Information

PMT number: 21-1-01857S15_C01

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.150000	---	37.64	56.00	18.36	1000.0	9.000	L1	GND	0.1
0.150000	52.10	---	66.00	13.90	1000.0	9.000	L1	GND	0.1
0.162656	---	35.10	55.33	20.23	1000.0	9.000	L1	GND	0.1
0.162656	49.39	---	65.33	15.94	1000.0	9.000	L1	GND	0.1
0.182188	47.65	---	64.39	16.74	1000.0	9.000	N	GND	0.1
0.182188	---	34.17	54.39	20.22	1000.0	9.000	N	GND	0.1
0.232969	---	29.22	52.34	23.12	1000.0	9.000	N	GND	0.1
0.232969	41.31	---	62.34	21.03	1000.0	9.000	N	GND	0.1
0.481250	---	38.21	46.32	8.11	1000.0	9.000	L1	GND	0.1
0.481250	46.06	---	56.32	10.26	1000.0	9.000	L1	GND	0.1
0.948906	34.33	---	56.00	21.67	1000.0	9.000	N	GND	0.2
0.948906	---	25.04	46.00	20.96	1000.0	9.000	N	GND	0.2
1.847813	---	21.91	46.00	24.09	1000.0	9.000	L1	GND	0.3
1.847813	34.01	---	56.00	21.99	1000.0	9.000	L1	GND	0.3
3.042656	33.24	---	56.00	22.76	1000.0	9.000	N	GND	0.3
3.042656	---	23.24	46.00	22.76	1000.0	9.000	N	GND	0.3
4.760313	32.10	---	56.00	23.90	1000.0	9.000	L1	GND	0.4
4.760313	---	23.08	46.00	22.92	1000.0	9.000	L1	GND	0.4

3.01_laying

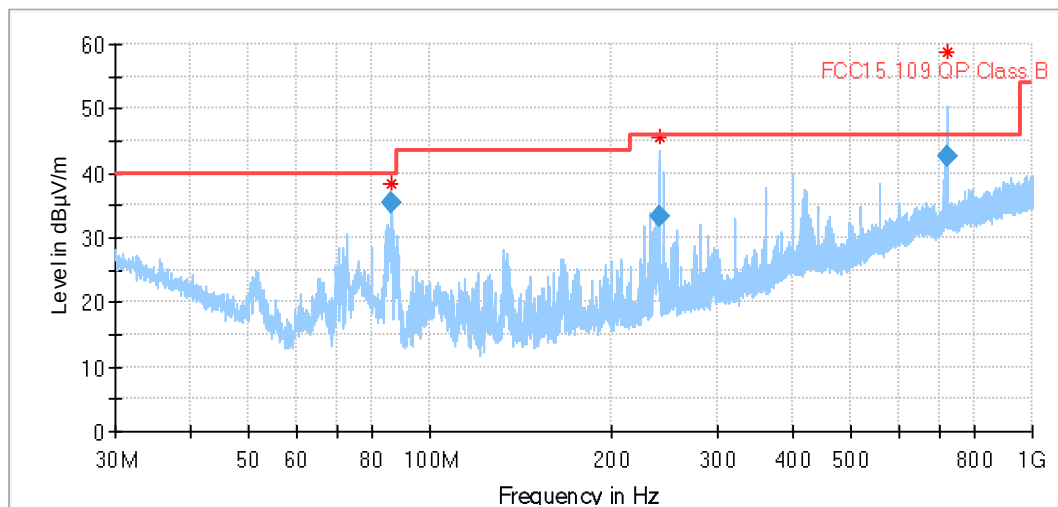
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.109 Unintentional Radiator
Antenna polarisation:	horizontal/vertical
Operation mode:	CAN + Ethernet + GNSS receiver
Operator Name:	HLA/Knopp
Environmental Conditions::	Humidity : 40%rH; Temperature: 21°C
Verdict:	Passed

EUT Information

PMT number:	21-1-01857S15
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Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
86.510000	35.35	40.00	4.65	120.000	368.0	H	183.0	7.7	10:14:25 - 28.10.2022
239.830000	33.16	46.00	12.84	120.000	149.0	H	346.0	12.8	10:04:13 - 28.10.2022
720.110000	42.68	46.00	3.32	120.000	180.0	H	160.0	25.3	10:09:41 - 28.10.2022

3.02_standing

Common Information

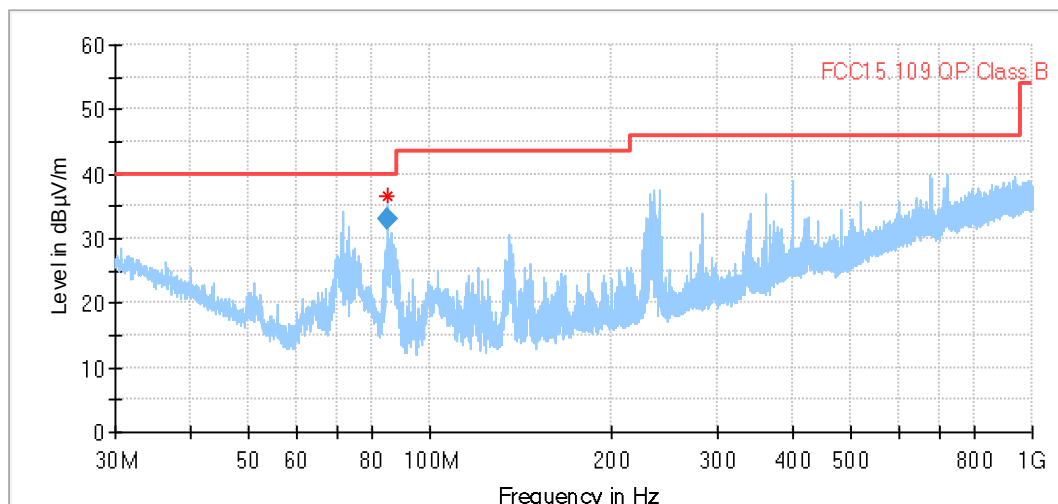
Test Description: Radiated field strength emission in 3m distance
Test Site: CETECOM GmbH Essen
Test Standard: FCC 15.109 Unintentional Radiator
Antenna polarisation: horizontal/vertical

Operation mode: CAN + Ethernet + GNSS receiver
Operator Name: HLa/Knopp
Environmental Conditions: Humidity : 40%rH; Temperature: 21°C
Verdict: Passed

EUT Information

PMT number: 21-1-01857S15

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
84.870000	32.90	40.00	7.10	120.000	368.0	H	198.0	7.5	10:40:51 - 28.10.2022

4.01_laying

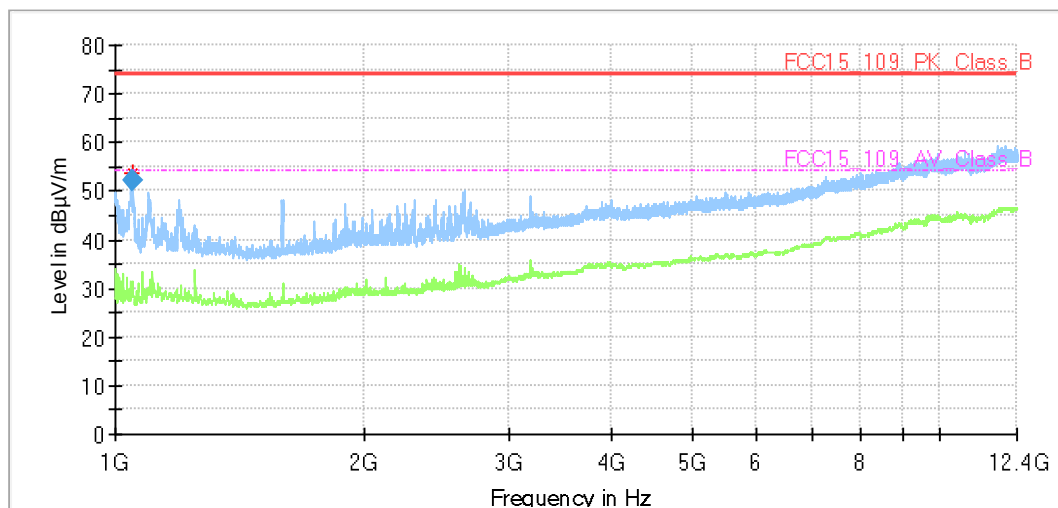
Common Information

Test Description:	Radiated Filed Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC 15.109 Unintentional Radiator
Operating Mode:	CAN + Ethernet + GNSS receiver
Equipment Class:	Class B
Environmental Conditions:	Humidity: 40%rH; Temperature: 20°C
Operator:	HLA
Verdict:	Passed

EUT Information

PMT Sample Nr.	21-1-01857S15_C01
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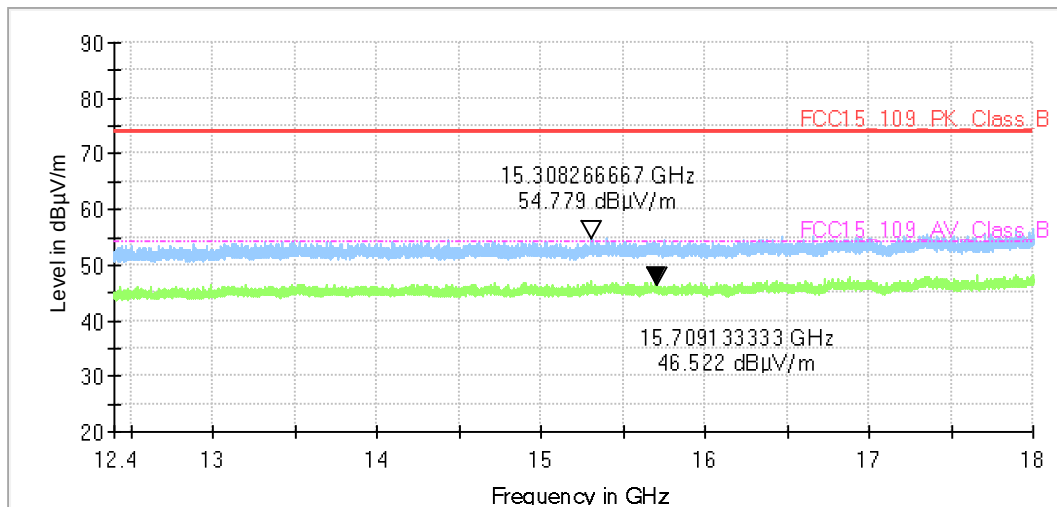
Full Spectrum



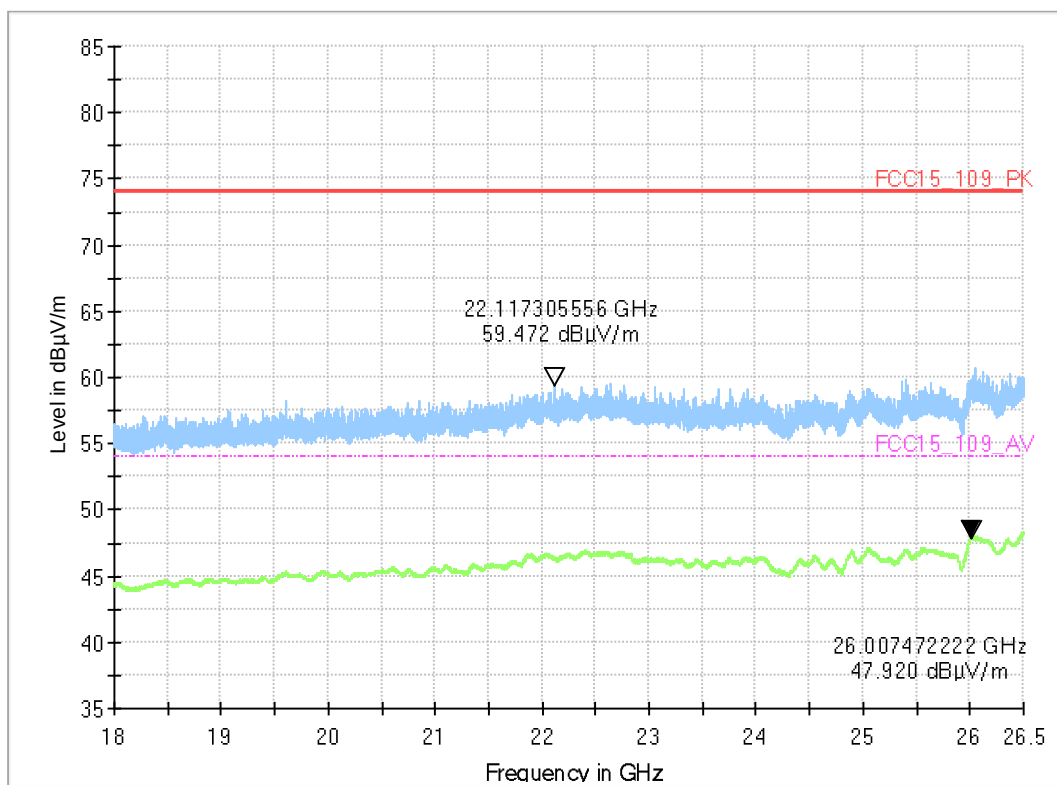
Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)	Trd Corr. (dB/m)
1047.199475	52.32	74.00	21.69	200.0	150.0	V	140.0	0.0	-12.5	26.4

Full Spectrum



Full Spectrum



4.02_standing

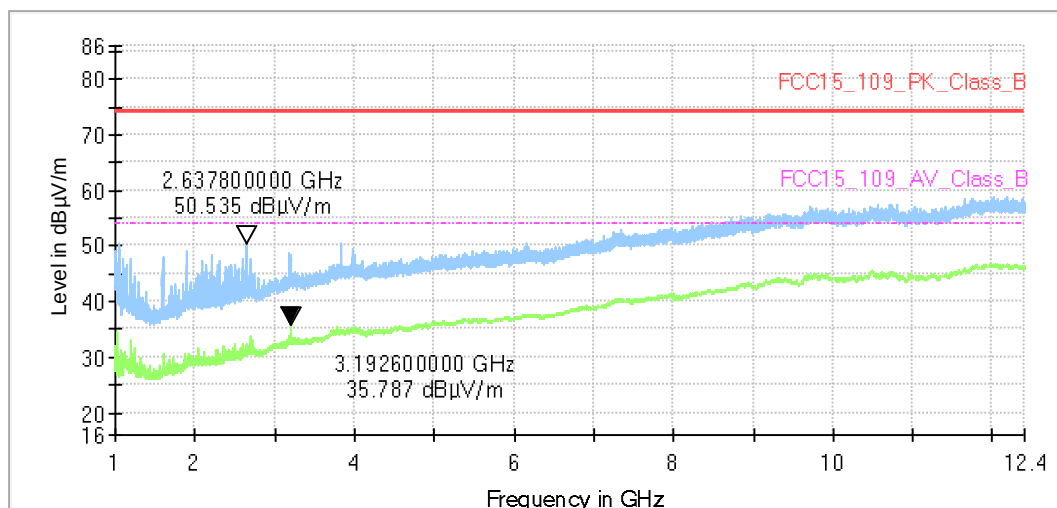
Common Information

Test Description:	Radiated Filed Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC 15.109 Unintentional Radiator
Operating Mode:	CAN + Ethernet + GNSS receiver
Equipment Class:	Class B
Environmental Conditions:	Humidity: 55%rH; Temperature: 20.9°C
Operator:	HLA
Verdict:	Passed

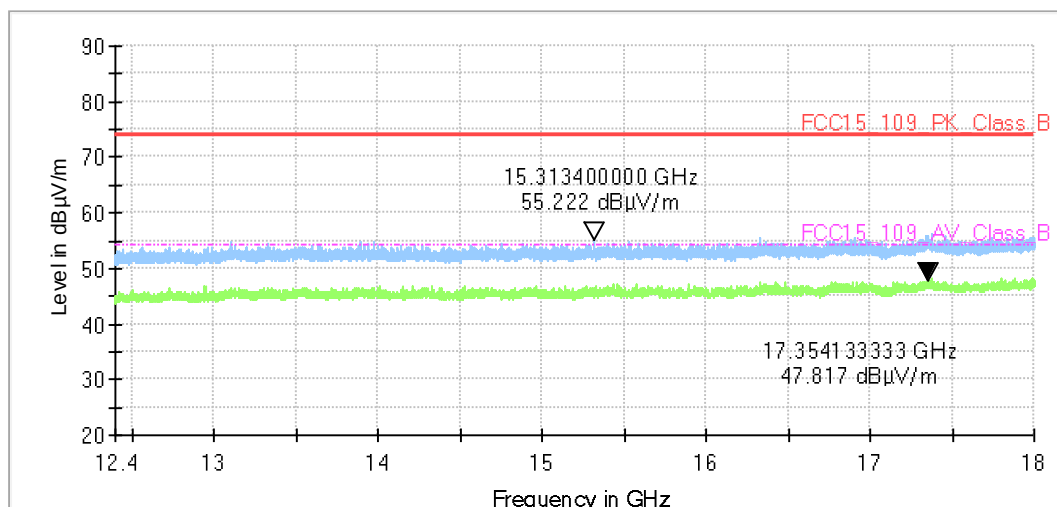
EUT Information

PMT Sample Nr.	21-1-01857S15_C01
Set-up:	--

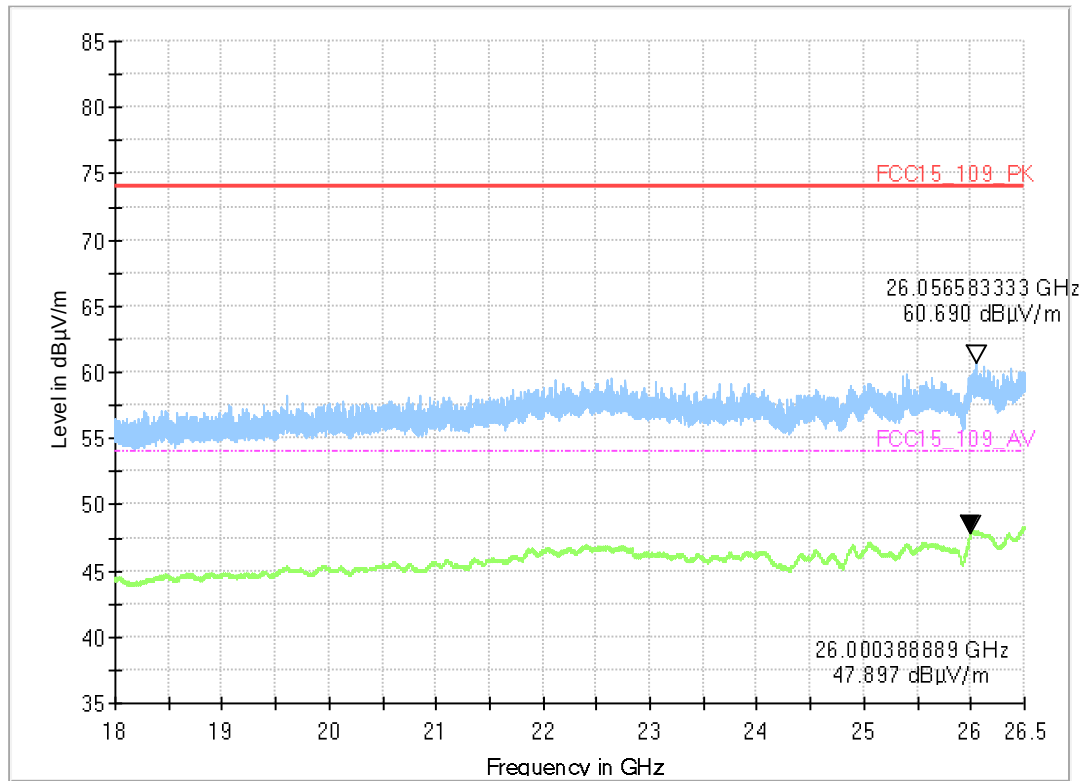
Full Spectrum



Full Spectrum



Full Spectrum



End Of Annex 1