

TEST REPORT



CTK Co., Ltd.
(Ho-dong), 113, Yejik-ro, Cheoin-gu,
Yongin-si, Gyeonggi-do, Korea
Tel: +82-31-339-9871
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Report No.:
CTK-2018-02315
Page (1) / (57) Pages

1. Client

- Name : Samsung Electronics Co., Ltd.
- Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Republic of Korea
- Date of Receipt : 2018-05-24

2. Manufacturer

- Name : Samsung Electronics Co., Ltd.
- Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Republic of Korea

3. Use of Report : For FCC Report

4. Test Sample / Model: WLAN Access Point / WEA554i and WEA554d.

5. Date of Test : 2018-07-23 to 2018-09-11

6. FCC ID : A3LWEA554

7. Certification Number IC : 649E-WEA554

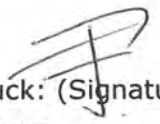
8. Test Standard(method) used : FCC Part 15 Subpart B ICES-003, Issue 6

9. FCC Classification: JBP (Part 15 B - Class B Computing Device Peripheral)

10. Testing Environment: refer to 12 pages to 45 pages

11. Test Results : refer to 13 pages to 45 pages

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This Test Report cannot be reproduced, except in full.

Affirmation	Tested by	Approved by
	 Yoon Yeongdeuck: (Signature) EMC Test Engineer	 Yoo Yoosang: (Signature) Technical Manager

2018-09-11

Republic of KOREA **CTK Co., Ltd.**

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REPORT REVISION HISTORY

Date	Revision	Page No
2018-09-11	Issued (CTK-2018-02315)	All

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1.0 General Product Description

No.	ITEM		APPLICATION	
1	Test Sample		WLAN Access Point	
2	Model		WEA554i	
3	Variant Model		WEA554d	
4	Test Model		WEA554i, WEA554d	
5	Mobility		☐ Table-top ☐ Floor-standing ☒ Built-in ☐ Portable	
6	Maximum Clock Frequency		Above 108 MHz (Client not provided)	
7	Electrical Ratings	POE	Input:	AC 100 V – AC 240 V, 50 Hz ~ 60 Hz, 8.0 A
			Output:	DC 48 V
		EUT	Input:	DC 48 V, 0.54 A
			Output:	-
8	Test Voltage / Frequency		Voltage:	DC 48 V (POE)
			Frequency:	-

1.1 Model Differences

Model name	WEA554i	WEA554d
Difference	Antenna	

1.2 Device Modifications

The following modifications were necessary for compliance:

Not applicable

1.3 EUT Configuration(s)

See Appendix A for individual test set-up configuration(s). The following peripheral devices and/or interface cables were connected during the measurement:

☒ Peripheral Devices

Device	Model No.	Serial No.	Manufacturer
HP 5130-24G-PoE+-4SFP+(370W) Ei Switch	BJNGA-AD0031	-	Hewlett Packard Enterprise Company
Notebook Computer	HSTNN-I66C-5U	5CG7234N2C	HP
AC POWER ADAPTER	PPP009A	-	Achel Electronic (Wuhan) Co., Ltd./China

☒ Cable Description

[POE, Optical Mode]

No.	From		To		Type of Cable		
	Device	I/O Port	Device	I/O Port	Length (m)	Shielded or Unshielded	Ferrite Core [Y/N]
1	EUT	ETH(POE)	HP 5130-24G-PoE+-4SFP+(370W) Ei Switch	LAN	20.0	S	N
2		ETH(WAN)	Cable	-	20.0	S	N
3		SFP	HP 5130-24G-PoE+-4SFP+(370W) Ei Switch	Optical	20.0	U	N
4		GND	GND	GND	2.0	U	N
5	HP 5130-24G-PoE+-4SFP+(370W) Ei Switch	LAN	Notebook Computer	LAN	3.0	S	N
6		AC POWER	AC Mains	-	1.5	U	N
7	Notebook Computer	DC IN	AC POWER ADAPTER	DC OUT	1.8	S	N
8	AC POWER ADAPTER	AC POWER	AC Mains	-	1.5	U	N

[WAN Mode]

No.	From		To		Type of Cable		
	Device	I/O Port	Device	I/O Port	Length (m)	Shielded or Unshielded	Ferrite Core [Y/N]
1	EUT	ETH(POE)	HP 5130-24G-PoE+-4SFP+(370W) Ei Switch	LAN	20.0	S	N
2		ETH(WAN)	Notebook Computer	LAN	20.0	S	N
3		SFP	HP 5130-24G-PoE+-4SFP+(370W) Ei Switch	Optical	20.0	U	N
4		GND	GND	GND	2.0	U	N
5	Notebook Computer	DC IN	AC POWER ADAPTER	DC OUT	1.8	S	N
6	AC POWER ADAPTER	AC POWER	AC Mains	-	1.5	U	N
7	HP 5130-24G-PoE+-4SFP+(370W) Ei Switch	AC POWER	AC Mains	-	1.5	U	N

* Shielded or Unshielded : Unshielded=U, Shielded=S

1.4 Test Software

- ☐ EMC Test V 1.0
- ☐ Display Test Patterns – V1.5
- ☒ Ping.exe
- ☐ Not applicable

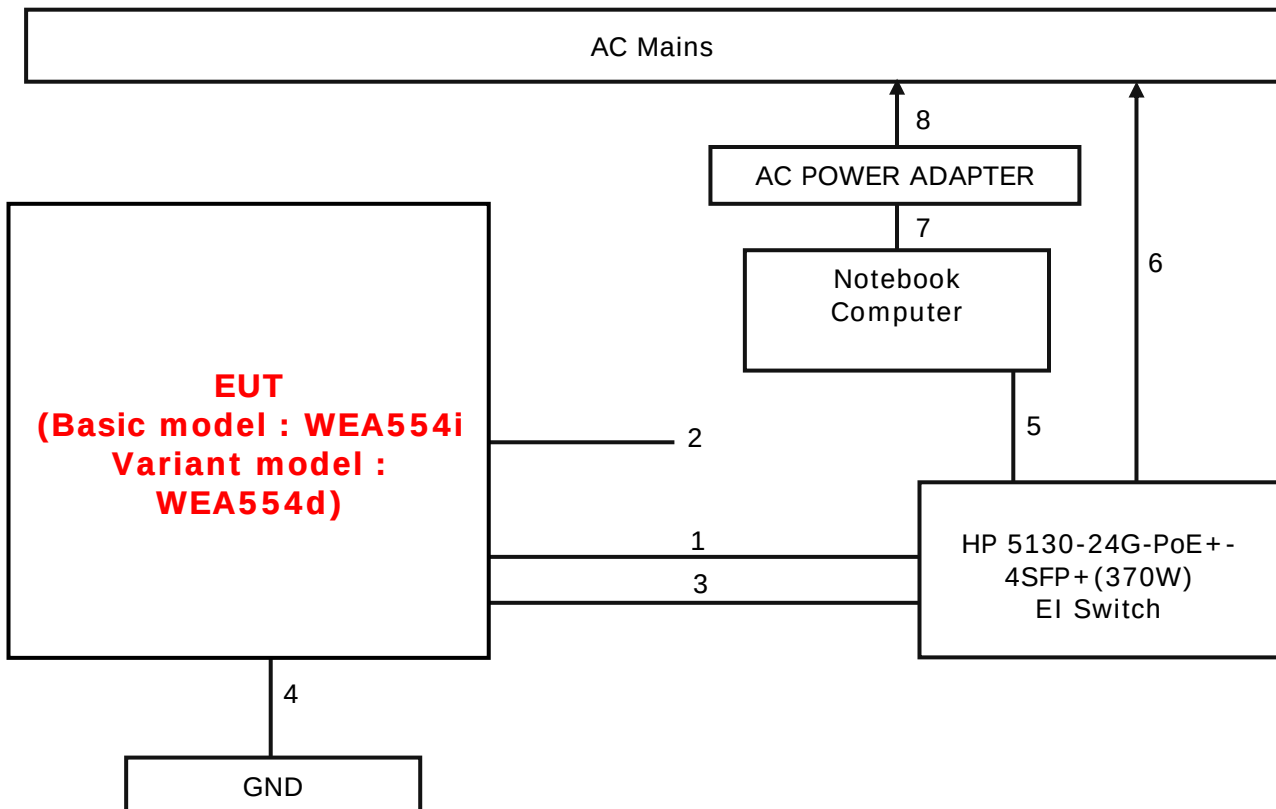
1.5 EUT Operating Mode(s)

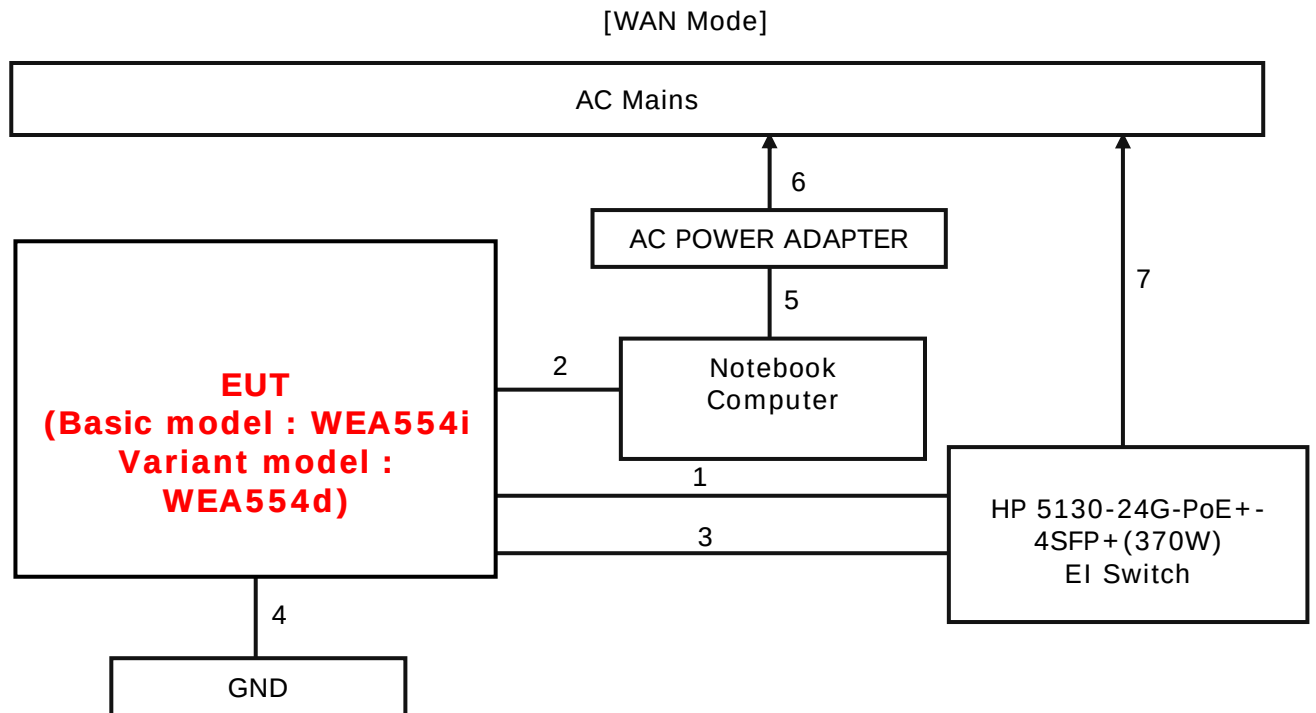
Equipment under test was operated during the measurement under the following conditions:

- ① POE Mode
- ② WAN Mode
- ③ Optical Mode

1.6 Configuration

[POE, Optical Mode]





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1.7 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

1.8 Test Facility

The measurement facility is located at
(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea.
(Unhak-dong) 142, Dongbu-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea.

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

1.9 Measurement Procedure

Preliminary AC power line conducted emissions tests were performed shielded room. To find worst mode, several typical mode and typical cable position were tested. Final AC power line conducted emissions test was performed shielded room. (location is same as Preliminary test)
Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

Preliminary radiated emissions test were performed Semi-Anechoic Chamber or anechoic chamber (Distance of antenna and EUT was 3 m). To find worst mode, several typical mode and typical cable position were tested and peak level and frequency were recorded.

Final radiated emissions test was performed Semi-Anechoic Chamber.
Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

* Measurement procedures was In accordance with ANSI C63.4-2014 7.3.3, 7.3.4, 8.3.1.1, 8.3.1.2, 8.3.2.1, 8.3.2.2

Note #1: These results are deemed satisfactory evidence of compliance with ICES-003 of the Canadian Interference-Causing Equipment Regulations.

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1.10 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Registration Number	Logo
USA	FCC	FCC Part 15 & 18 EMI (Electromagnetic Interference / Emission)	805871	
JAPAN	VCCI	VCCI V-3 EMI (Electromagnetic Interference / Emission)	C-10986 T-1843 R-3627 G-10387	
KOREA	MSIP	EMI (Electromagnetic Interference / Emission) EMS (Electromagnetic Susceptibility / Immunity)	KR0025	
International	KOLAS	EMI (Electromagnetic Interference / Emission) EMS (Electromagnetic Susceptibility / Immunity)	TESTING NO.KT119	
CANADA	ISED	ICES-003, Issue 6 EMI (Electromagnetic Interference / Emission)	8737A-2	

1.11 Measurement Uncertainty

Compliance of the product is based on the measured value.

However, the measurement uncertainty is included for information purposes.

The measurement uncertainties given below are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

[Ho-dong Lab]

Measurement Type	Frequency Range	Expanded Uncertainty
Conducted Emission of Mains Ports	150 kHz to 30 MHz	2.26 dB (C.L.: Approx. 95 %, $k=2$)
Radiated Emission	30 MHz to 1 000 MHz	4.62 dB (C.L.: Approx. 95 %, $k=2$)
Radiated Emission	1 GHz Above	5.10 dB (C.L.: Approx. 95 %, $k=2$)

[Unhak-dong Lab]

Measurement Type	Frequency Range	Expanded Uncertainty
Conducted Emission of Mains Ports	150 kHz to 30 MHz	2.18 dB (C.L.: Approx. 95 %, $k=2$)
Radiated Emission	30 MHz to 1 000 MHz	4.36 dB (C.L.: Approx. 95 %, $k=2$)
Radiated Emission	1 GHz Above	4.68 dB (C.L.: Approx. 95 %, $k=2$)

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2.0 EMC Test Regulations / Standards

The tests were performed according to following regulations:

Applied standard	Title	Applied	Test Result
FCC Part 15 Subpart B ☐ Class A ☒ Class B	Conducted Voltage Emissions	☒	☒ MET ☐ NOT MET
	Radiated Electric Field Emissions	☒	☒ MET ☐ NOT MET

3.0 Results of Individual Test

3.1 Conducted Voltage Emissions of Mains ports

Test Date

2018-09-11

Test Location

Unhak-dong Lab Shielded Room

Test Equipment

Name of Equipment	Model No.	Manufacturer	Serial No.	Due Date	Applied
EMI Receiver	ESR	Rohde & Schwarz	102323	2018-09-28	☒
LISN	ENV216	Rohde & Schwarz	101151	2018-10-25	☒
LISN	LS16C/10	AFJ Instruments	16011726410	2018-09-29	☒
ISN	ISN ST08	TESEQ GMBH	47110	2018-09-27	☐
8-Wire ISN	ENY81	Rohde & Schwarz	100303	2018-10-10	☐
8-Wire ISN For CAT6	ENY81-CA6	Rohde & Schwarz	101791	2018-10-10	☐
CDN	CDN S501A	TESEQ GMBH	46163	2018-09-27	☐
CDN	CDN S751A	TESEQ GMBH	46645	2018-09-27	☐

Test Software

ESR : EMC32 V10.20.01

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Setting

IF Band Width: 9 kHz

Climate Condition

Temperature: (24 ± 1) °C

Relative Humidity: (55 ± 1) %

Atmospheric Pressure: 99 kPa

Test Result

The requirements are: ☒ MET ☐ NOT MET

Test Mode	Frequency (MHz)	Measured Data (dBμV)	Margin (dB)	Remark
WEA554i_POE	0.393 000	41.15	6.85	CAverage
WEA554i_WAN	0.388 500	41.40	6.70	CAverage
WEA554i_Optical	0.388 500	41.27	6.83	CAverage
WEA554d_POE	0.393 000	41.09	6.91	CAverage
WEA554d_WAN	0.388 500	41.50	6.60	CAverage
WEA554d_Optical	0.388 500	41.36	6.74	CAverage

The Result is calculated by using the following formula;

- * Result = Limit – Margin (Result included the correction factor)
- * Correction factor = Cable Loss + Insertion loss of LISN

Test Data

[WEA554i_POE] [Line: L1]

Test

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Test Report

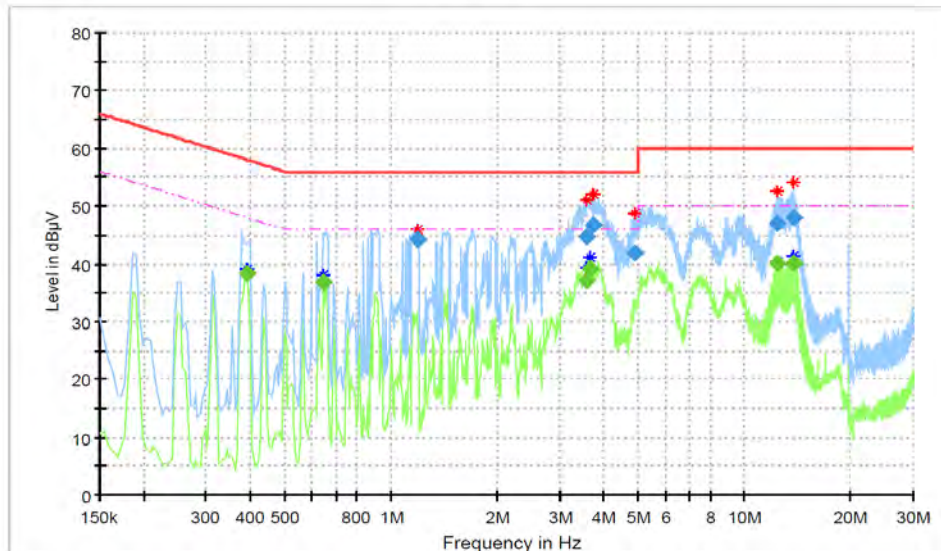
Common Information

Test Model Name: WEA554i
Test Mode: PoE mode
Manufacturer: Samsung Electronics Co., Ltd.
Tester: Yoon Yeong Deuck

Hardware Setup: EMI conducted\Voltage with ENV216_FO(101151) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESR 3 [ESR 3]
@ VISA (ADR TCPIP::192.168.48.20::INST0::INSTR), SN 1316.3003K03/102323, FW 3.36 SP1
Signal Path: ESR 3-ENV216 FO (101151)
FW 1.0
Correction Table: CE #1 Cable Loss
LISN: ENV216 FO (101151)
SN 101151
Correction Table (Line 0): ENV216_FO_N(101151)
Correction Table (Line 1): ENV216_FO_L1(101151)

Full Spectrum



9/11/2018

9:19:55 AM

Test

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Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.393000	---	38.33	48.00	9.67	1000.0	9.000	L1	ON	10.0
0.645000	---	36.79	46.00	9.21	1000.0	9.000	L1	ON	10.0
1.189500	44.26	---	56.00	11.74	1000.0	9.000	L1	ON	10.0
3.574500	---	37.15	46.00	8.85	1000.0	9.000	L1	ON	9.9
3.588000	44.61	---	56.00	11.39	1000.0	9.000	L1	ON	9.9
3.660000	---	39.13	46.00	6.87	1000.0	9.000	L1	ON	9.9
3.723000	46.75	---	56.00	9.25	1000.0	9.000	L1	ON	9.9
4.870500	41.81	---	56.00	14.19	1000.0	9.000	L1	ON	9.9
12.358500	---	40.17	50.00	9.83	1000.0	9.000	L1	ON	10.1
12.417000	47.09	---	60.00	12.91	1000.0	9.000	L1	ON	10.1
13.803000	---	40.16	50.00	9.84	1000.0	9.000	L1	ON	10.2
13.803000	47.91	---	60.00	12.09	1000.0	9.000	L1	ON	10.2

9/11/2018

9:19:55 AM

[WEA554i_POE] [Line : Neutral]

Test

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Test Report

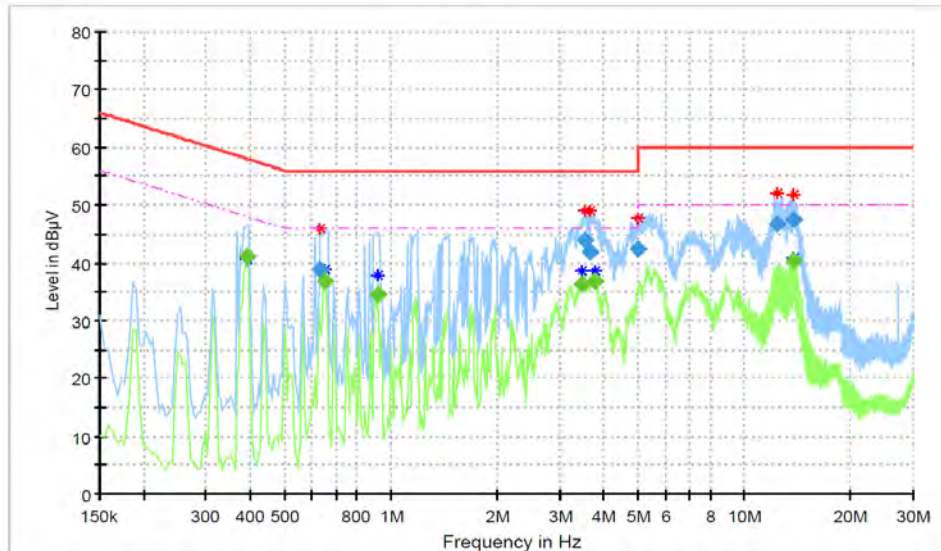
Common Information

Test Model Name: WEA554i
Test Mode: PoE mode
Manufacturer: Samsung Electronics Co., Ltd.
Tester: Yoon Yeong Deuck

Hardware Setup: EMI conducted\Voltage with ENV216_FO(101151) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESR 3 [ESR 3]
@ VISA (ADR TCPIP::192.168.48.20::INST0::INSTR), SN 1316.3003K03/102323, FW 3.36 SP1
Signal Path: ESR 3-ENV216 FO (101151)
FW 1.0
Correction Table: CE #1 Cable Loss
LISN: ENV216 FO (101151)
SN 101151
Correction Table (Line 0): ENV216_FO_N(101151)
Correction Table (Line 1): ENV216_FO_L1(101151)

Full Spectrum



9/11/2018

9:26:43 AM

Test

2 / 2

Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.393000	---	41.15	48.00	6.85	1000.0	9.000	N	ON	10.0
0.631500	38.87	---	56.00	17.13	1000.0	9.000	N	ON	10.0
0.654000	---	36.81	46.00	9.19	1000.0	9.000	N	ON	10.0
0.919500	---	34.49	46.00	11.51	1000.0	9.000	N	ON	9.9
3.453000	---	36.21	46.00	9.79	1000.0	9.000	N	ON	9.9
3.529500	43.96	---	56.00	12.04	1000.0	9.000	N	ON	9.9
3.678000	41.82	---	56.00	14.18	1000.0	9.000	N	ON	9.9
3.772500	---	36.75	46.00	9.25	1000.0	9.000	N	ON	9.9
4.996500	42.48	---	56.00	13.52	1000.0	9.000	N	ON	10.0
12.354000	46.74	---	60.00	13.26	1000.0	9.000	N	ON	10.2
13.731000	47.60	---	60.00	12.40	1000.0	9.000	N	ON	10.2
13.735500	---	40.46	50.00	9.54	1000.0	9.000	N	ON	10.2

9/11/2018

9:26:43 AM

[WEA554i_WAN] [Line: L1]

Test

1 / 2

Test Report

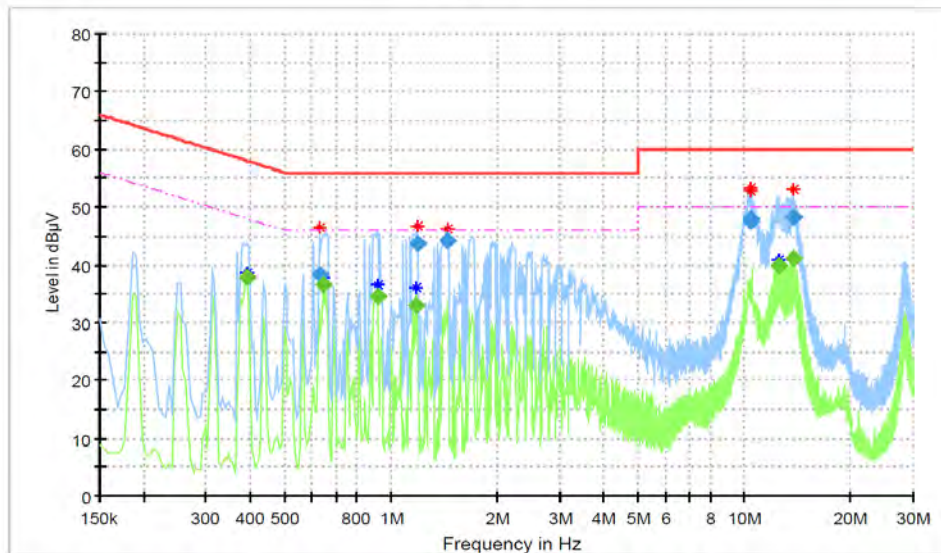
Common Information

Test Model Name: WEA554i
Test Mode: WAN mode
Manufacturer: Samsung Electronics Co., Ltd.
Tester: Yoon Yeong Deuck

Hardware Setup: EMI conducted\Voltage with ENV216_FO(101151) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESR 3 [ESR 3]
@ VISA (ADR TCPIP::192.168.48.20::INST0::INSTR), SN 1316.3003K03/102323, FW 3.36 SP1
Signal Path: ESR 3-ENV216 FO (101151)
FW 1.0
Correction Table: CE #1 Cable Loss
LISN: ENV216 FO (101151)
SN 101151
Correction Table (Line 0): ENV216_FO_N(101151)
Correction Table (Line 1): ENV216_FO_L1(101151)

Full Spectrum



9/11/2018

9:46:45 AM

Test

2 / 2

Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.393000	---	37.95	48.00	10.05	1000.0	9.000	L1	ON	10.0
0.627000	38.23	---	56.00	17.77	1000.0	9.000	L1	ON	10.0
0.645000	---	36.65	46.00	9.35	1000.0	9.000	L1	ON	10.0
0.915000	---	34.63	46.00	11.37	1000.0	9.000	L1	ON	9.9
1.180500	---	33.11	46.00	12.89	1000.0	9.000	L1	ON	10.0
1.189500	43.74	---	56.00	12.26	1000.0	9.000	L1	ON	10.0
1.441500	44.08	---	56.00	11.92	1000.0	9.000	L1	ON	9.9
10.396500	47.45	---	60.00	12.55	1000.0	9.000	L1	ON	10.0
10.423500	47.89	---	60.00	12.11	1000.0	9.000	L1	ON	10.0
12.543000	---	39.81	50.00	10.19	1000.0	9.000	L1	ON	10.1
13.794000	---	41.04	50.00	8.96	1000.0	9.000	L1	ON	10.2
13.794000	48.19	---	60.00	11.81	1000.0	9.000	L1	ON	10.2

9/11/2018

9:46:45 AM

[WEA554i_WAN] [Line : Neutral]

Test

1 / 2

Test Report

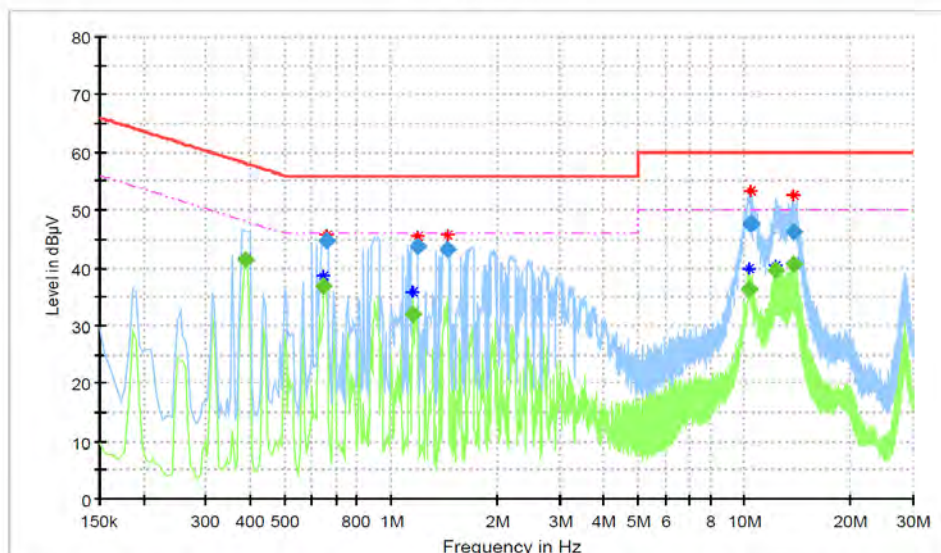
Common Information

Test Model Name: WEA554i
Test Mode: WAN mode
Manufacturer: Samsung Electronics Co., Ltd.
Tester: Yoon Yeong Deuck

Hardware Setup: EMI conducted\Voltage with ENV216_FO(101151) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESR 3 [ESR 3]
@ VISA (ADR TCPIP::192.168.48.20::INST0::INSTR), SN
1316.3003K03/102323, FW 3.36 SP1
Signal Path: ESR 3-ENV216 FO (101151)
FW 1.0
Correction Table: CE #1 Cable Loss
LISN: ENV216 FO (101151)
SN 101151
Correction Table (Line 0): ENV216_FO_N(101151)
Correction Table (Line 1): ENV216_FO_L1(101151)

Full Spectrum



9/11/2018

9:51:55 AM

Test

2 / 2

Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.388500	---	41.40	48.10	6.70	1000.0	9.000	N	ON	10.0
0.645000	---	36.90	46.00	9.10	1000.0	9.000	N	ON	10.0
0.658500	44.66	---	56.00	11.34	1000.0	9.000	N	ON	10.0
1.153500	---	31.97	46.00	14.03	1000.0	9.000	N	ON	10.0
1.185000	43.62	---	56.00	12.38	1000.0	9.000	N	ON	10.0
1.441500	43.19	---	56.00	12.81	1000.0	9.000	N	ON	9.9
10.261500	---	36.34	50.00	13.66	1000.0	9.000	N	ON	10.1
10.365000	47.49	---	60.00	12.51	1000.0	9.000	N	ON	10.1
10.419000	47.83	---	60.00	12.17	1000.0	9.000	N	ON	10.1
12.291000	---	39.67	50.00	10.33	1000.0	9.000	N	ON	10.2
13.735500	46.29	---	60.00	13.71	1000.0	9.000	N	ON	10.2
13.794000	---	40.72	50.00	9.28	1000.0	9.000	N	ON	10.2

9/11/2018

9:51:55 AM

[WEA554i_Optical] [Line: L1]

Test

1 / 2

Test Report

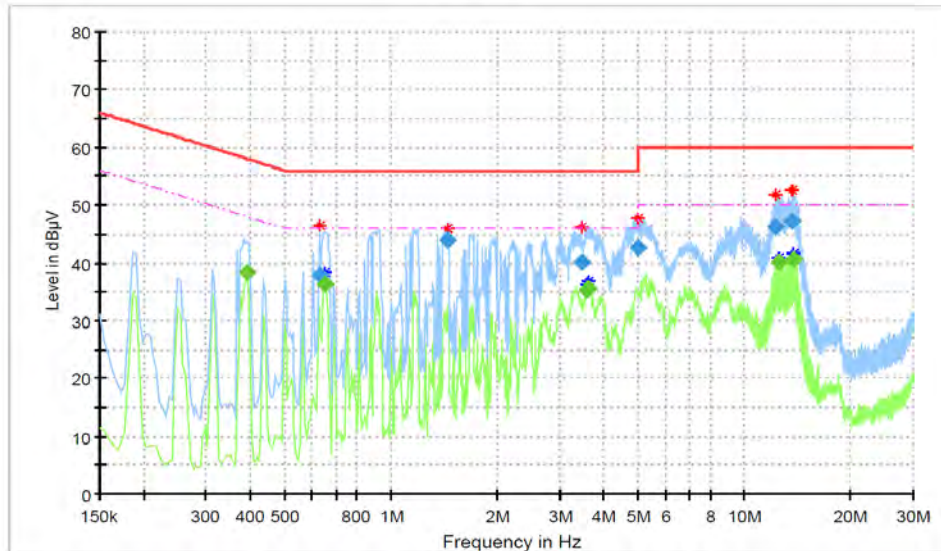
Common Information

Test Model Name: WEA554i
Test Mode: Optical mode
Manufacturer: Samsung Electronics Co., Ltd.
Tester: Yoon Yeong Deuck

Hardware Setup: EMI conducted\Voltage with ENV216_FO(101151) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESR 3 [ESR 3]
@ VISA (ADR TCPIP::192.168.48.20::INST0::INSTR), SN 1316.3003K03/102323, FW 3.36 SP1
Signal Path: ESR 3-ENV216 FO (101151)
FW 1.0
Correction Table: CE #1 Cable Loss
LISN: ENV216 FO (101151)
SN 101151
Correction Table (Line 0): ENV216_FO_N(101151)
Correction Table (Line 1): ENV216_FO_L1(101151)

Full Spectrum



9/11/2018

9:38:17 AM

Test

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Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.393000	---	38.23	48.00	9.77	1000.0	9.000	L1	ON	10.0
0.627000	37.91	---	56.00	18.09	1000.0	9.000	L1	ON	10.0
0.649500	---	36.42	46.00	9.58	1000.0	9.000	L1	ON	10.0
1.441500	43.86	---	56.00	12.14	1000.0	9.000	L1	ON	9.9
3.480000	40.02	---	56.00	15.98	1000.0	9.000	L1	ON	9.9
3.597000	---	35.25	46.00	10.75	1000.0	9.000	L1	ON	9.9
3.624000	---	35.63	46.00	10.37	1000.0	9.000	L1	ON	9.9
4.992000	42.66	---	56.00	13.34	1000.0	9.000	L1	ON	10.0
12.295500	46.20	---	60.00	13.80	1000.0	9.000	L1	ON	10.1
12.543000	---	40.19	50.00	9.81	1000.0	9.000	L1	ON	10.1
13.672500	47.14	---	60.00	12.86	1000.0	9.000	L1	ON	10.2
13.735500	---	40.67	50.00	9.33	1000.0	9.000	L1	ON	10.2

9/11/2018

9:38:17 AM

[WEA554i_Optical] [Line : Neutral]

Test

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Test Report

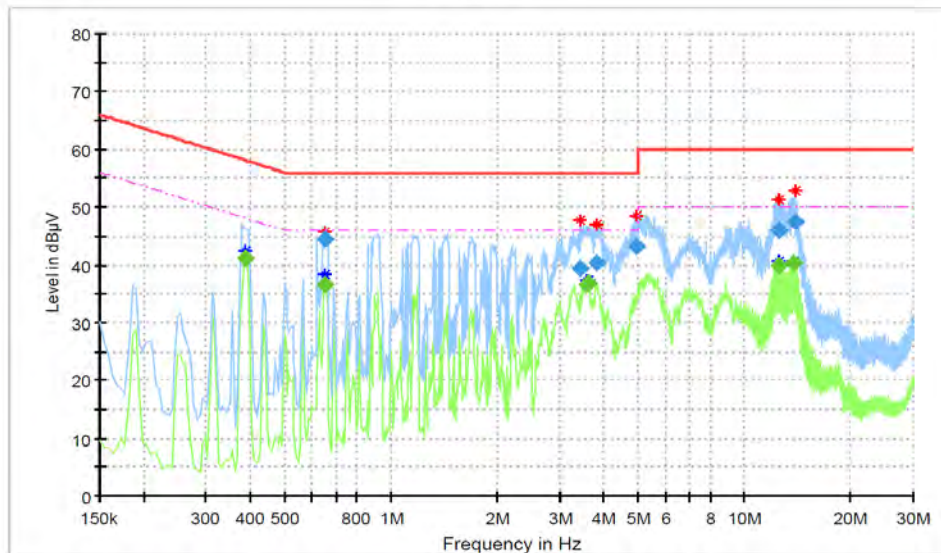
Common Information

Test Model Name: WEA554i
Test Mode: Optical mode
Manufacturer: Samsung Electronics Co., Ltd.
Tester: Yoon Yeong Deuck

Hardware Setup: EMI conducted\Voltage with ENV216_FO(101151) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESR 3 [ESR 3]
@ VISA (ADR TCPIP::192.168.48.20::INST0::INSTR), SN 1316.3003K03/102323, FW 3.36 SP1
Signal Path: ESR 3-ENV216 FO (101151)
FW 1.0
Correction Table: CE #1 Cable Loss
LISN: ENV216 FO (101151)
SN 101151
Correction Table (Line 0): ENV216_FO_N(101151)
Correction Table (Line 1): ENV216_FO_L1(101151)

Full Spectrum



9/11/2018

9:33:05 AM

Test

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Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.388500	---	41.27	48.10	6.83	1000.0	9.000	N	ON	10.0
0.649500	---	36.60	46.00	9.40	1000.0	9.000	N	ON	10.0
0.649500	44.42	---	56.00	11.58	1000.0	9.000	N	ON	10.0
3.444000	39.45	---	56.00	16.55	1000.0	9.000	N	ON	9.9
3.579000	---	36.56	46.00	9.44	1000.0	9.000	N	ON	9.9
3.619500	---	36.85	46.00	9.15	1000.0	9.000	N	ON	9.9
3.804000	40.42	---	56.00	15.58	1000.0	9.000	N	ON	9.9
4.924500	43.05	---	56.00	12.95	1000.0	9.000	N	ON	10.0
12.475500	46.09	---	60.00	13.91	1000.0	9.000	N	ON	10.2
12.480000	---	39.80	50.00	10.20	1000.0	9.000	N	ON	10.2
13.731000	---	40.40	50.00	9.60	1000.0	9.000	N	ON	10.2
13.924500	47.51	---	60.00	12.49	1000.0	9.000	N	ON	10.2

9/11/2018

9:33:05 AM

[WEA554d_POE] [Line: L1]

Test

1 / 2

Test Report

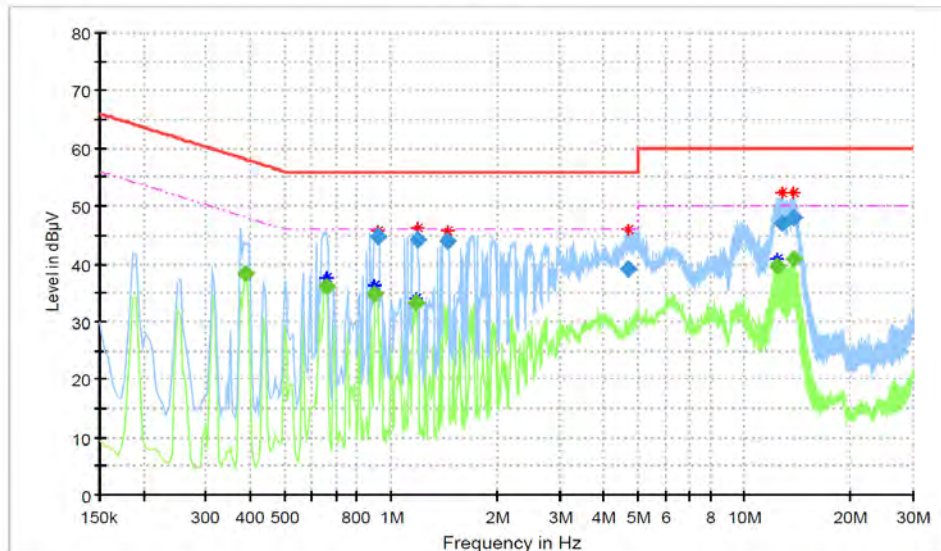
Common Information

Test Model Name: WEA554d
Test Mode: PoE mode
Manufacturer: Samsung Electronics Co., Ltd.
Tester: Yoon Yeong Deuck

Hardware Setup: EMI conducted\Voltage with ENV216_FO(101151) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESR 3 [ESR 3]
@ VISA (ADR TCP/IP::192.168.48.20::INST0::INSTR), SN
1316.3003K03/102323, FW 3.36 SP1
Signal Path: ESR 3-ENV216 FO (101151)
FW 1.0
Correction Table: CE #1 Cable Loss
LISN: ENV216 FO (101151)
SN 101151
Correction Table (Line 0): ENV216_FO_N(101151)
Correction Table (Line 1): ENV216_FO_L1(101151)

Full Spectrum



9/11/2018

10:27:32 AM

Test

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Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.388500	---	38.47	48.10	9.62	1000.0	9.000	L1	ON	10.0
0.658500	---	36.16	46.00	9.84	1000.0	9.000	L1	ON	10.0
0.901500	---	34.75	46.00	11.25	1000.0	9.000	L1	ON	9.9
0.924000	44.59	---	56.00	11.41	1000.0	9.000	L1	ON	9.9
1.180500	---	33.26	46.00	12.74	1000.0	9.000	L1	ON	10.0
1.189500	44.32	---	56.00	11.68	1000.0	9.000	L1	ON	10.0
1.446000	43.81	---	56.00	12.19	1000.0	9.000	L1	ON	9.9
4.708500	39.07	---	56.00	16.93	1000.0	9.000	L1	ON	9.9
12.417000	---	39.60	50.00	10.40	1000.0	9.000	L1	ON	10.1
12.727500	46.99	---	60.00	13.01	1000.0	9.000	L1	ON	10.1
13.731000	47.99	---	60.00	12.01	1000.0	9.000	L1	ON	10.2
13.794000	---	40.94	50.00	9.06	1000.0	9.000	L1	ON	10.2

9/11/2018

10:27:32 AM

[WEA554d_POE] [Line : Neutral]

Test

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Test Report

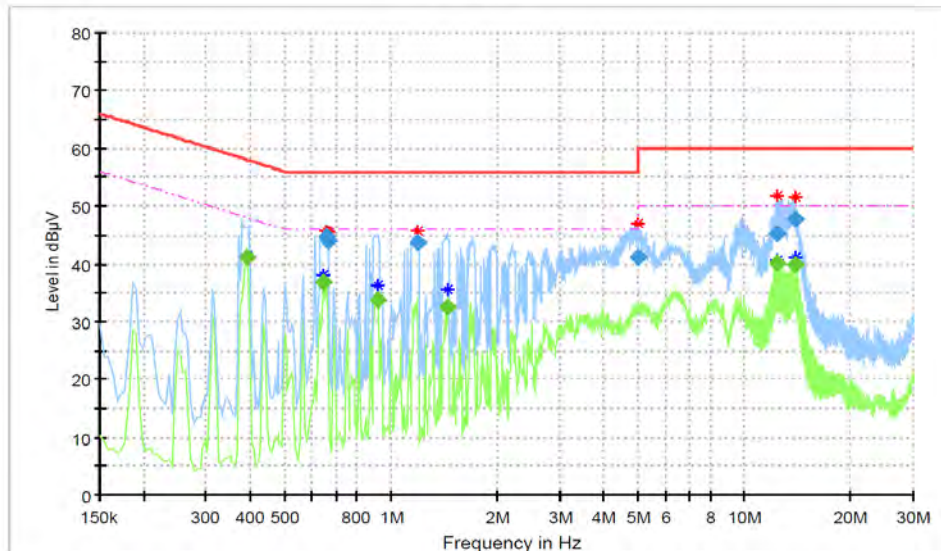
Common Information

Test Model Name: WEA554d
Test Mode: PoE mode
Manufacturer: Samsung Electronics Co., Ltd.
Tester: Yoon Yeong Deuck

Hardware Setup: EMI conducted\Voltage with ENV216_FO(101151) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESR 3 [ESR 3]
@ VISA (ADR TCP/IP::192.168.48.20::INST0::INSTR), SN 1316.3003K03/102323, FW 3.36 SP1
Signal Path: ESR 3-ENV216 FO (101151)
FW 1.0
Correction Table: CE #1 Cable Loss
LISN: ENV216 FO (101151)
SN 101151
Correction Table (Line 0): ENV216_FO_N(101151)
Correction Table (Line 1): ENV216_FO_L1(101151)

Full Spectrum



9/11/2018

10:22:23 AM

Test

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Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.393000	---	41.09	48.00	6.91	1000.0	9.000	N	ON	10.0
0.645000	---	36.94	46.00	9.06	1000.0	9.000	N	ON	10.0
0.658500	44.70	---	56.00	11.30	1000.0	9.000	N	ON	10.0
0.663000	43.93	---	56.00	12.07	1000.0	9.000	N	ON	10.0
0.915000	---	33.71	46.00	12.29	1000.0	9.000	N	ON	9.9
1.189500	43.62	---	56.00	12.38	1000.0	9.000	N	ON	10.0
1.446000	---	32.62	46.00	13.38	1000.0	9.000	N	ON	9.9
4.983000	41.22	---	56.00	14.78	1000.0	9.000	N	ON	10.0
12.417000	---	40.01	50.00	9.99	1000.0	9.000	N	ON	10.2
12.421500	45.20	---	60.00	14.80	1000.0	9.000	N	ON	10.2
13.920000	---	39.98	50.00	10.02	1000.0	9.000	N	ON	10.2
13.920000	47.64	---	60.00	12.36	1000.0	9.000	N	ON	10.2

9/11/2018

10:22:23 AM

[WEA554d_WAN] [Line: L1]

Test

1 / 2

Test Report

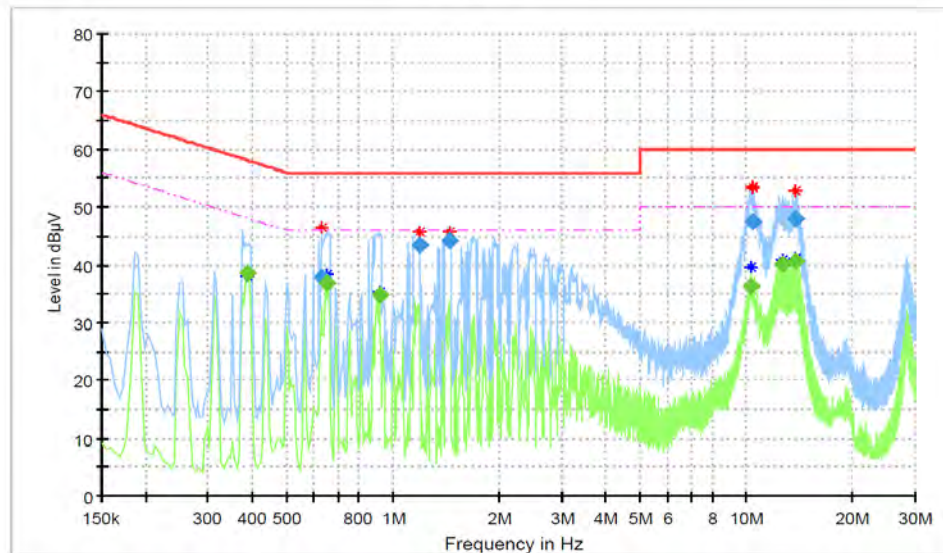
Common Information

Test Model Name: WEA554d
Test Mode: WAN mode
Manufacturer: Samsung Electronics Co., Ltd.
Tester: Yoon Yeong Deuck

Hardware Setup: EMI conducted\Voltage with ENV216_FO(101151) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESR 3 [ESR 3]
@ VISA (ADR TCP/IP::192.168.48.20::INST0::INSTR), SN 1316.3003K03/102323, FW 3.36 SP1
Signal Path: ESR 3-ENV216 FO (101151)
FW 1.0
Correction Table: CE #1 Cable Loss
LISN: ENV216 FO (101151)
SN 101151
Correction Table (Line 0): ENV216_FO_N(101151)
Correction Table (Line 1): ENV216_FO_L1(101151)

Full Spectrum



9/11/2018

10:05:54 AM

Test

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Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.388500	---	38.62	48.10	9.48	1000.0	9.000	L1	ON	10.0
0.627000	37.93	---	56.00	18.07	1000.0	9.000	L1	ON	10.0
0.654000	---	36.92	46.00	9.08	1000.0	9.000	L1	ON	10.0
0.915000	---	34.69	46.00	11.31	1000.0	9.000	L1	ON	9.9
1.189500	43.51	---	56.00	12.49	1000.0	9.000	L1	ON	10.0
1.441500	44.07	---	56.00	11.93	1000.0	9.000	L1	ON	9.9
10.261500	---	36.31	50.00	13.69	1000.0	9.000	L1	ON	10.0
10.396500	47.38	---	60.00	12.62	1000.0	9.000	L1	ON	10.0
10.414500	47.60	---	60.00	12.40	1000.0	9.000	L1	ON	10.0
12.606000	---	40.20	50.00	9.80	1000.0	9.000	L1	ON	10.1
13.794000	---	40.67	50.00	9.33	1000.0	9.000	L1	ON	10.2
13.794000	47.89	---	60.00	12.11	1000.0	9.000	L1	ON	10.2

9/11/2018

10:05:54 AM

[WEA554d_WAN] [Line : Neutral]

Test

1 / 2

Test Report

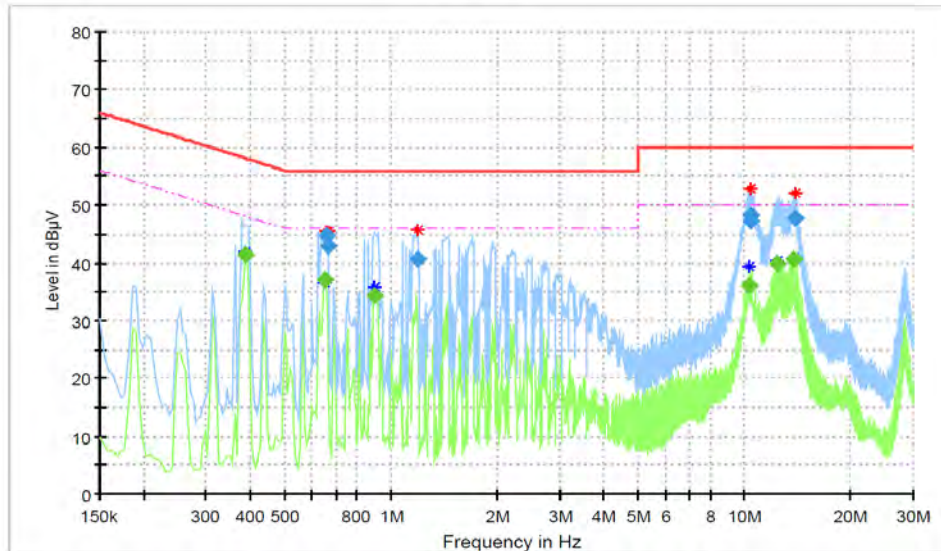
Common Information

Test Model Name: WEA554d
Test Mode: WAN mode
Manufacturer: Samsung Electronics Co., Ltd.
Tester: Yoon Yeong Deuck

Hardware Setup: EMI conducted\Voltage with ENV216_FO(101151) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESR 3 [ESR 3]
@ VISA (ADR TCP/IP::192.168.48.20::INST0::INSTR), SN 1316.3003K03/102323, FW 3.36 SP1
Signal Path: ESR 3-ENV216 FO (101151)
FW 1.0
Correction Table: CE #1 Cable Loss
LISN: ENV216 FO (101151)
SN 101151
Correction Table (Line 0): ENV216_FO_N(101151)
Correction Table (Line 1): ENV216_FO_L1(101151)

Full Spectrum



9/11/2018

10:00:38 AM

Test

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Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.388500	---	41.50	48.10	6.60	1000.0	9.000	N	ON	10.0
0.654000	---	37.00	46.00	9.00	1000.0	9.000	N	ON	10.0
0.658500	44.68	---	56.00	11.32	1000.0	9.000	N	ON	10.0
0.663000	42.81	---	56.00	13.19	1000.0	9.000	N	ON	10.0
0.901500	---	34.33	46.00	11.67	1000.0	9.000	N	ON	9.9
1.194000	40.62	---	56.00	15.38	1000.0	9.000	N	ON	10.0
10.270500	---	36.18	50.00	13.82	1000.0	9.000	N	ON	10.1
10.383000	47.20	---	60.00	12.80	1000.0	9.000	N	ON	10.1
10.455000	48.35	---	60.00	11.65	1000.0	9.000	N	ON	10.1
12.412500	---	39.95	50.00	10.05	1000.0	9.000	N	ON	10.2
13.794000	---	40.75	50.00	9.25	1000.0	9.000	N	ON	10.2
13.920000	47.83	---	60.00	12.17	1000.0	9.000	N	ON	10.2

9/11/2018

10:00:38 AM

[WEA554d_Optical] [Line: L1]

Test

1 / 2

Test Report

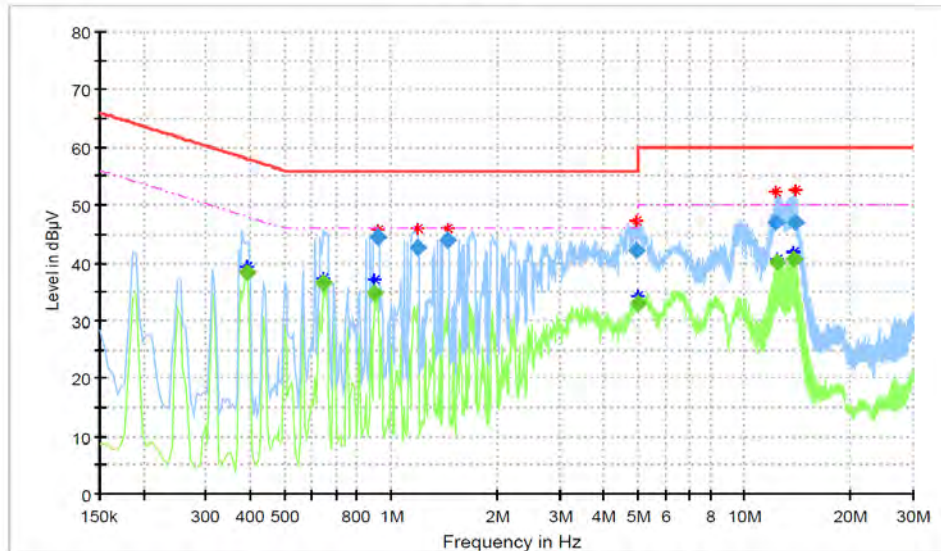
Common Information

Test Model Name: WEA554d
Test Mode: Optical mode
Manufacturer: Samsung Electronics Co., Ltd.
Tester: Yoon Yeong Deuck

Hardware Setup: EMI conducted\Voltage with ENV216_FO(101151) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESR 3 [ESR 3]
@ VISA (ADR TCPIP::192.168.48.20::INST0::INSTR), SN 1316.3003K03/102323, FW 3.36 SP1
Signal Path: ESR 3-ENV216 FO (101151)
FW 1.0
Correction Table: CE #1 Cable Loss
LISN: ENV216 FO (101151)
SN 101151
Correction Table (Line 0): ENV216_FO_N(101151)
Correction Table (Line 1): ENV216_FO_L1(101151)

Full Spectrum



9/11/2018

10:12:15 AM

Test

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Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.393000	---	38.25	48.00	9.75	1000.0	9.000	L1	ON	10.0
0.645000	---	36.67	46.00	9.33	1000.0	9.000	L1	ON	10.0
0.901500	---	34.84	46.00	11.16	1000.0	9.000	L1	ON	9.9
0.924000	44.51	---	56.00	11.49	1000.0	9.000	L1	ON	9.9
1.194000	42.57	---	56.00	13.43	1000.0	9.000	L1	ON	10.0
1.441500	44.00	---	56.00	12.00	1000.0	9.000	L1	ON	9.9
4.942500	42.13	---	56.00	13.87	1000.0	9.000	L1	ON	10.0
4.978500	---	32.92	46.00	13.08	1000.0	9.000	L1	ON	10.0
12.291000	46.98	---	60.00	13.02	1000.0	9.000	L1	ON	10.1
12.412500	---	40.18	50.00	9.82	1000.0	9.000	L1	ON	10.1
13.857000	---	40.75	50.00	9.25	1000.0	9.000	L1	ON	10.2
13.924500	47.05	---	60.00	12.95	1000.0	9.000	L1	ON	10.2

9/11/2018

10:12:15 AM

[WEA554d_Optical] [Line : Neutral]

Test

1 / 2

Test Report

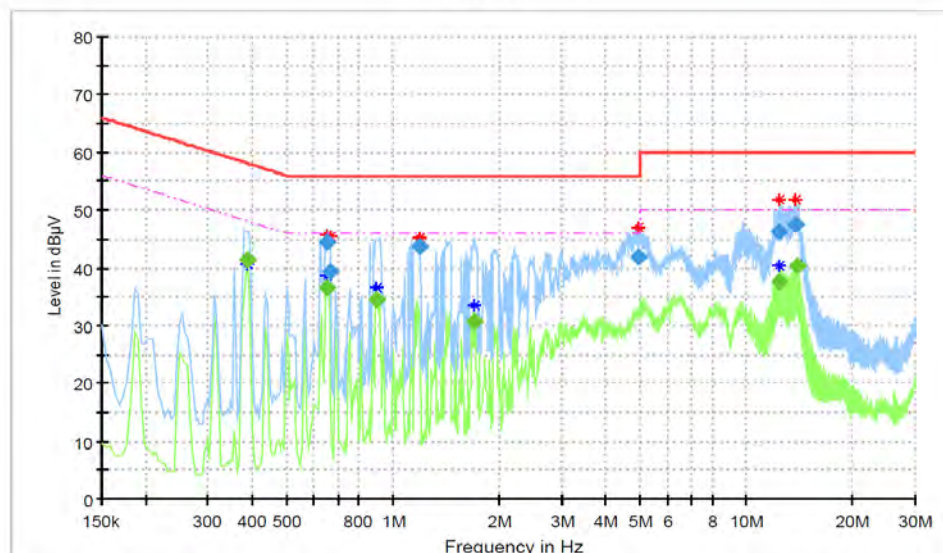
Common Information

Test Model Name: WEA554d
Test Mode: Optical mode
Manufacturer: Samsung Electronics Co., Ltd.
Tester: Yoon Yeong Deuck

Hardware Setup: EMI conducted\Voltage with ENV216_FO(101151) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESR 3 [ESR 3]
@ VISA (ADR TCPIP::192.168.48.20::INST0::INSTR), SN 1316.3003K03/102323, FW 3.36 SP1
Signal Path: ESR 3-ENV216 FO (101151)
FW 1.0
Correction Table: CE #1 Cable Loss
LISN: ENV216 FO (101151)
SN 101151
Correction Table (Line 0): ENV216_FO_N(101151)
Correction Table (Line 1): ENV216_FO_L1(101151)

Full Spectrum



9/11/2018

10:17:23 AM

Test

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Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.388500	---	41.36	48.10	6.74	1000.0	9.000	N	ON	10.0
0.649500	---	36.51	46.00	9.49	1000.0	9.000	N	ON	10.0
0.649500	44.38	---	56.00	11.62	1000.0	9.000	N	ON	10.0
0.667500	39.43	---	56.00	16.57	1000.0	9.000	N	ON	10.0
0.901500	---	34.51	46.00	11.49	1000.0	9.000	N	ON	9.9
1.189500	43.62	---	56.00	12.38	1000.0	9.000	N	ON	10.0
1.693500	---	30.83	46.00	15.17	1000.0	9.000	N	ON	9.9
4.938000	41.84	---	56.00	14.16	1000.0	9.000	N	ON	10.0
12.412500	46.25	---	60.00	13.75	1000.0	9.000	N	ON	10.2
12.412500	---	37.59	50.00	12.41	1000.0	9.000	N	ON	10.2
13.731000	47.61	---	60.00	12.39	1000.0	9.000	N	ON	10.2
13.920000	---	40.34	50.00	9.66	1000.0	9.000	N	ON	10.2

9/11/2018

10:17:23 AM

3.2 Radiated Electric Field Emissions (Below 1 GHz)

Test Date

2018-07-23

Test Location

Unhak-dong Lab 10 m SAC (test distance : ☐ 10 m, ☒ 3 m)

Test Equipment

Name of Equipment	Model No.	Manufacturer	Serial No.	Due Date	Applied
EMI Receiver	ESU40	Rohde & Schwarz	100036	2019-04-30	☒
Bilog Antenna	CBL6111C	Schaffner	2520	2018-10-20	☒
6dB Attenuator	DNF	Rohde & Schwarz	272.4110.50-1	2019-03-09	☒
Amplifier	310N	SONOMA	186254	2018-10-31	☒

Test Software

TOYO EMI software Ver. 5.1.0

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Setting

IF Band Width: 120 kHz

Climate Condition

Temperature: (21 ± 1) °C

Relative Humidity: (59 ± 1) %

Atmospheric Pressure: 100 kPa

Test Result

The requirements are: ☒ MET ☐ NOT MET

Test Mode	Frequency (MHz)	Measured Data (dBμV/m)	Margin (dB)	Remark
WEA554i_POE	937.531	37.6	8.4	Quasi-peak
WEA554i_WAN	30.437	34.8	5.2	Quasi-peak
WEA554i_Optical	937.518	38.5	7.5	Quasi-peak
WEA554d_POE	937.145	34.7	11.3	Quasi-peak
WEA554d_WAN	937.457	34.4	11.6	Quasi-peak
WEA554d_Optical	33.156	28.2	11.8	Quasi-peak

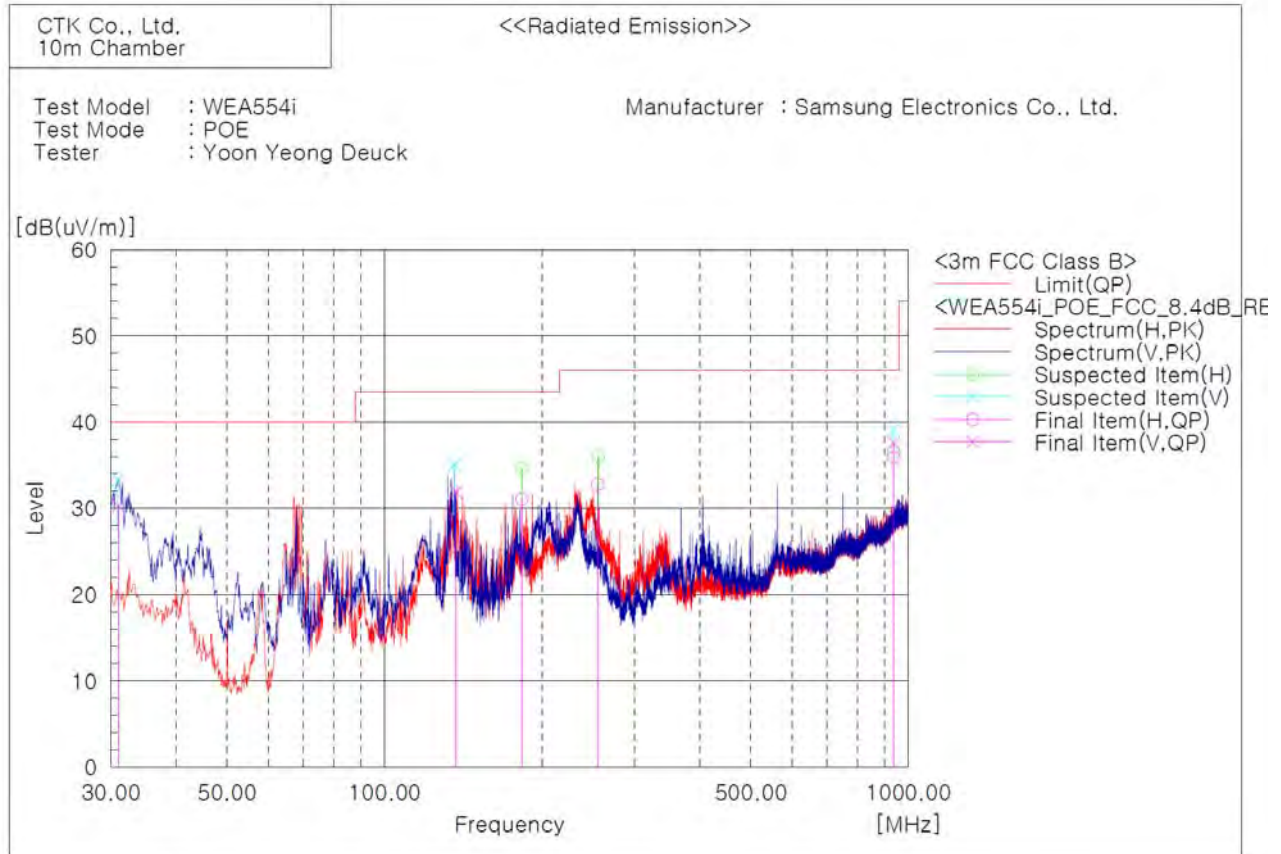
The Result is calculated by using the following formula;

* Result = Reading + Correction factor

* Correction factor = Antenna Factor + Cable Loss + 6 dB attenuator – Amp Gain

Test Data

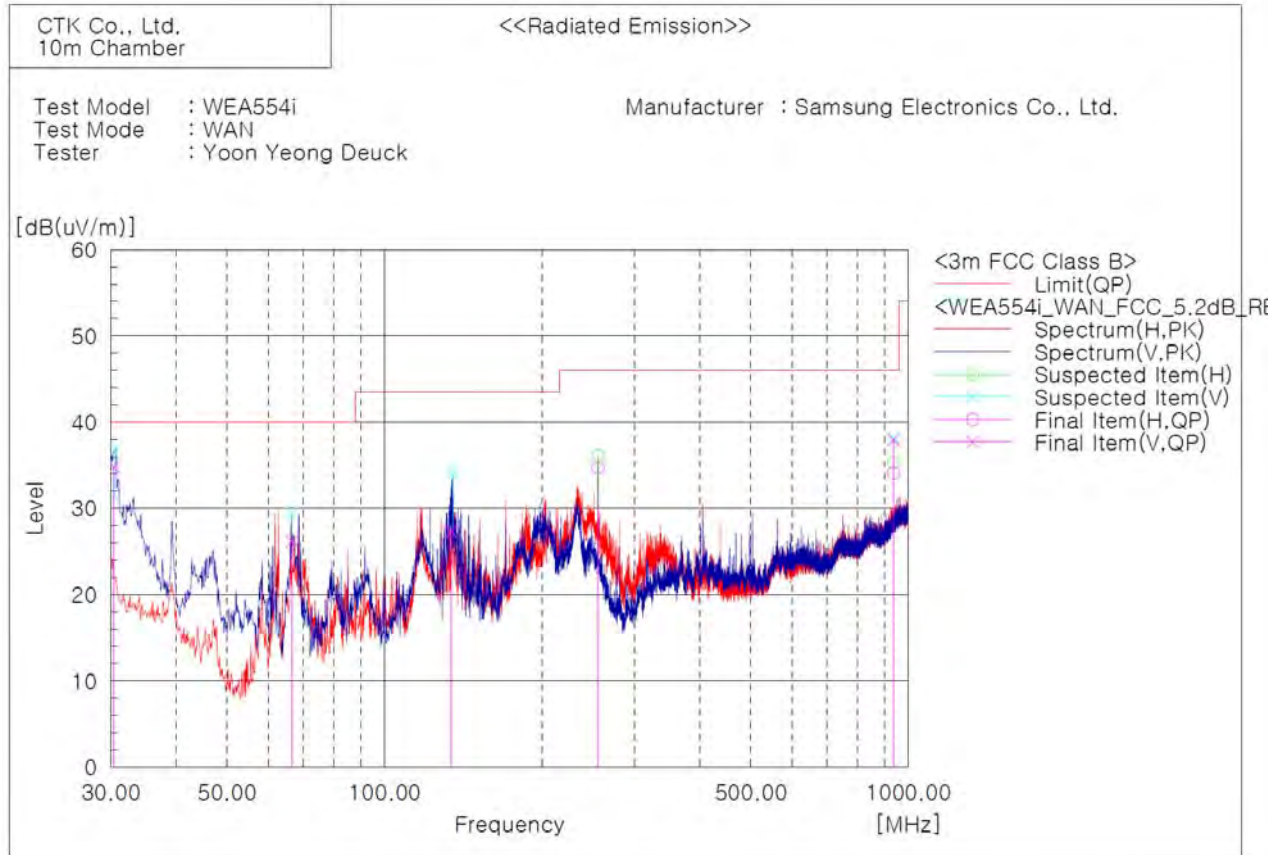
[WEA554i_POE]



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	31.022	V	37.2	-6.9	30.3	40.0	9.7	100.0	189.0
2	136.940	V	44.0	-12.1	31.9	43.5	11.6	100.0	6.0
3	182.967	H	46.1	-15.0	31.1	43.5	12.4	100.0	199.0
4	255.166	H	42.4	-9.6	32.8	46.0	13.2	100.0	321.0
5	937.514	H	30.3	5.6	35.9	46.0	10.1	100.0	350.0
6	937.531	V	32.0	5.6	37.6	46.0	8.4	100.0	10.0

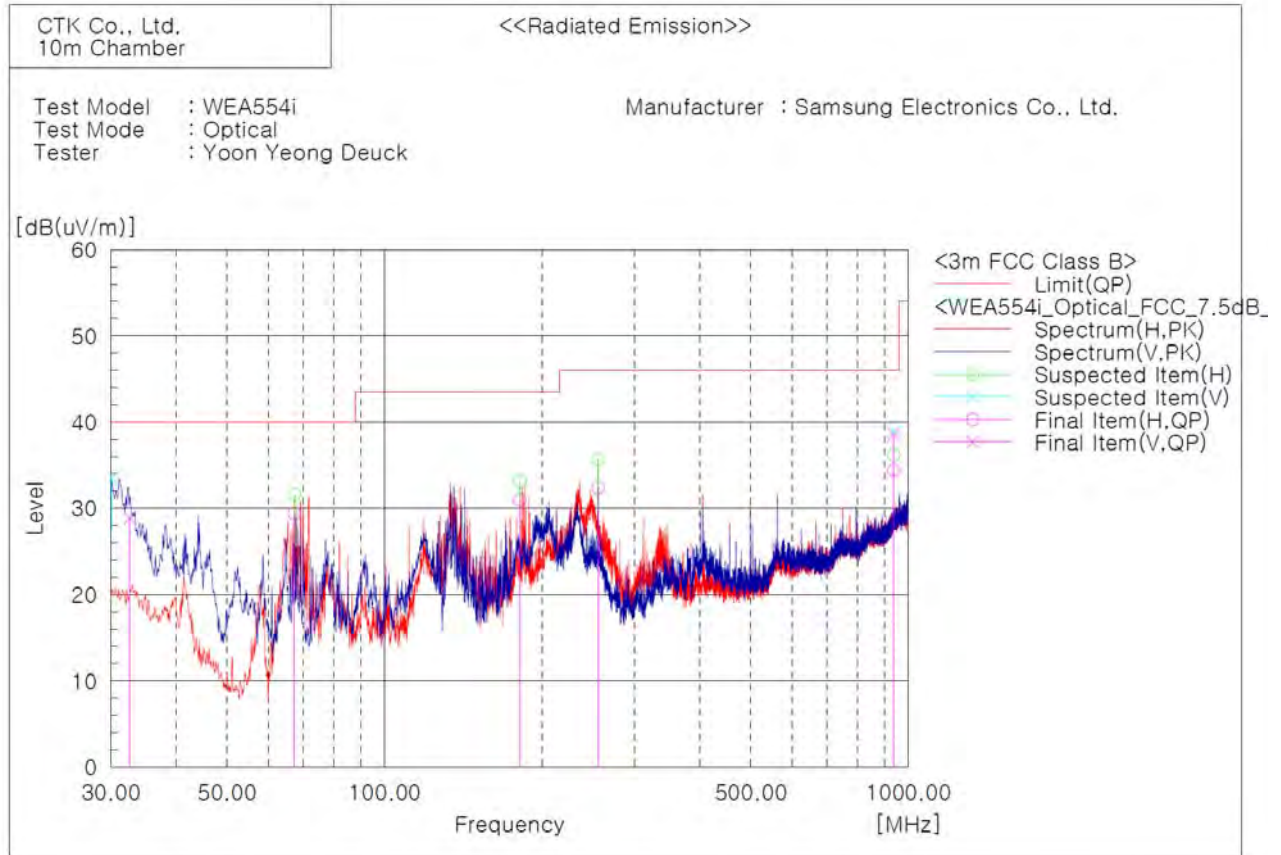
[WEA554i_WAN]



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	30.437	V	41.6	-6.8	34.8	40.0	5.2	100.0	86.0
2	66.519	V	45.7	-19.5	26.2	40.0	13.8	100.0	23.0
3	134.082	V	39.4	-12.1	27.3	43.5	16.2	100.0	254.0
4	255.614	H	44.3	-9.6	34.7	46.0	11.3	100.0	269.0
5	937.478	V	32.3	5.6	37.9	46.0	8.1	100.0	110.0
6	937.488	H	28.5	5.6	34.1	46.0	11.9	100.0	30.0

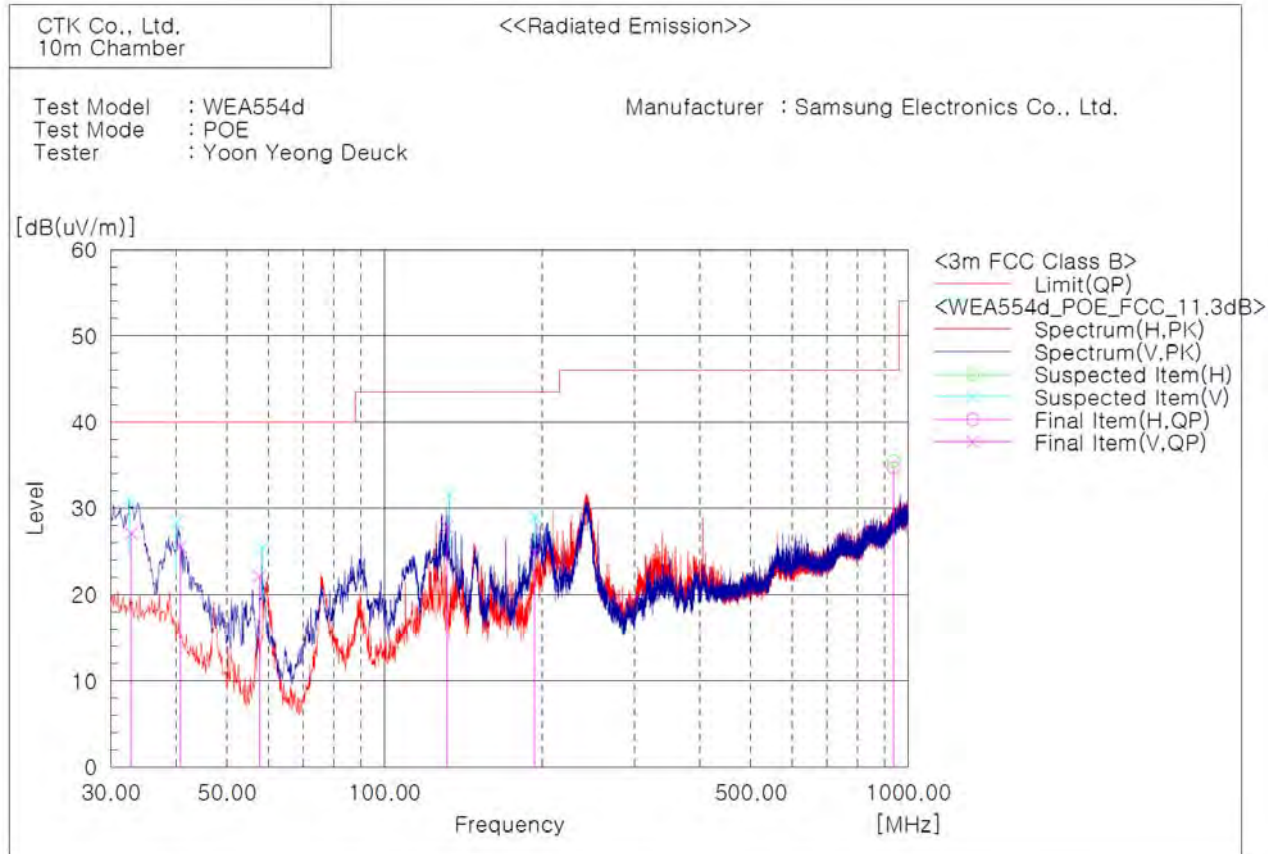
[WEA554i_Optical]



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	32.640	V	36.2	-7.3	28.9	40.0	11.1	100.0	98.0
2	67.288	H	48.8	-19.4	29.4	40.0	10.6	200.0	106.0
3	181.188	H	46.0	-15.0	31.0	43.5	12.5	200.0	39.0
4	255.699	H	41.9	-9.5	32.4	46.0	13.6	100.0	269.0
5	937.518	V	32.9	5.6	38.5	46.0	7.5	100.0	352.0
6	937.522	H	28.8	5.6	34.4	46.0	11.6	100.0	106.0

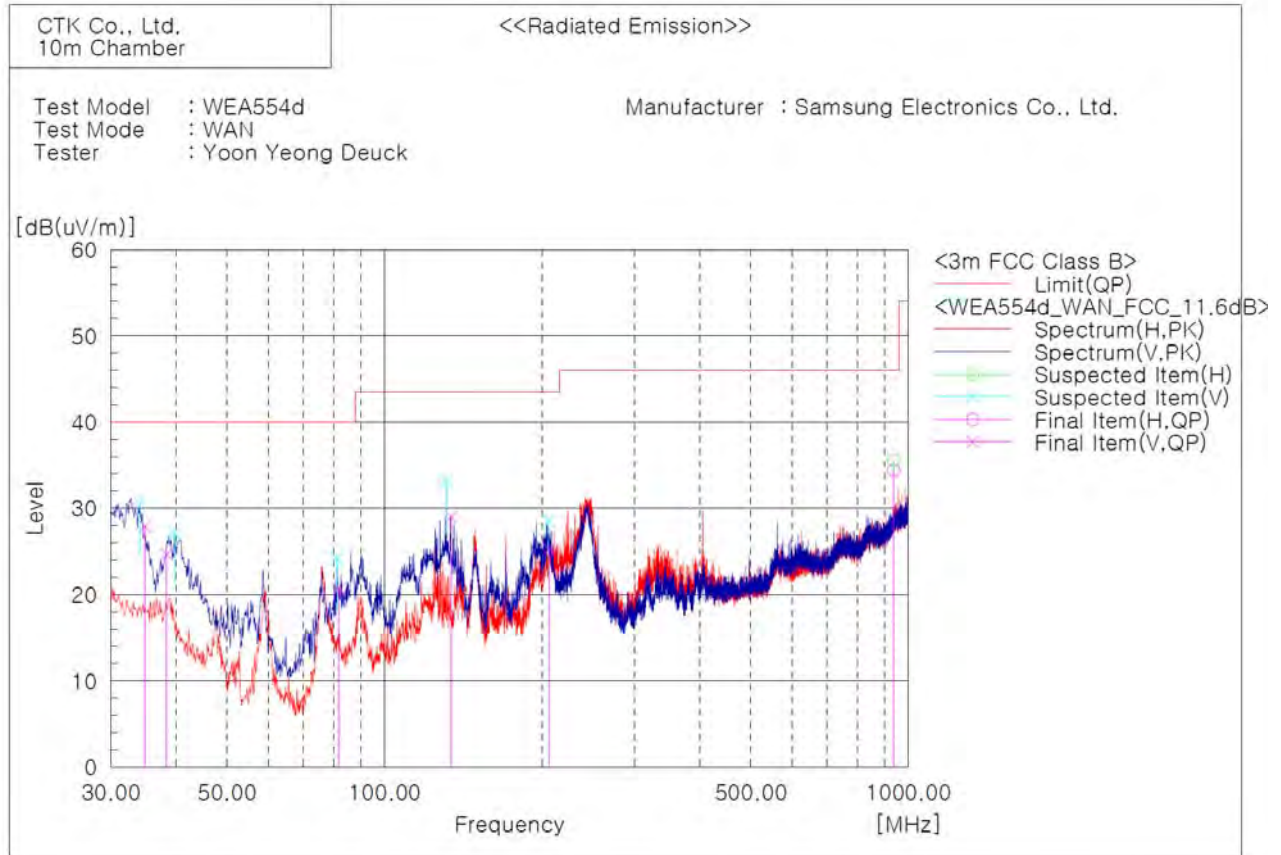
[WEA554d_POE]



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	32.836	V	34.5	-7.4	27.1	40.0	12.9	100.0	159.5
2	40.748	V	36.4	-10.9	25.5	40.0	14.5	100.0	248.6
3	57.665	V	41.6	-19.5	22.1	40.0	17.9	100.0	131.3
4	131.458	V	39.9	-12.1	27.8	43.5	15.7	100.0	345.6
5	193.465	V	39.9	-15.0	24.9	43.5	18.6	100.0	36.6
6	937.145	H	29.2	5.5	34.7	46.0	11.3	100.0	121.3

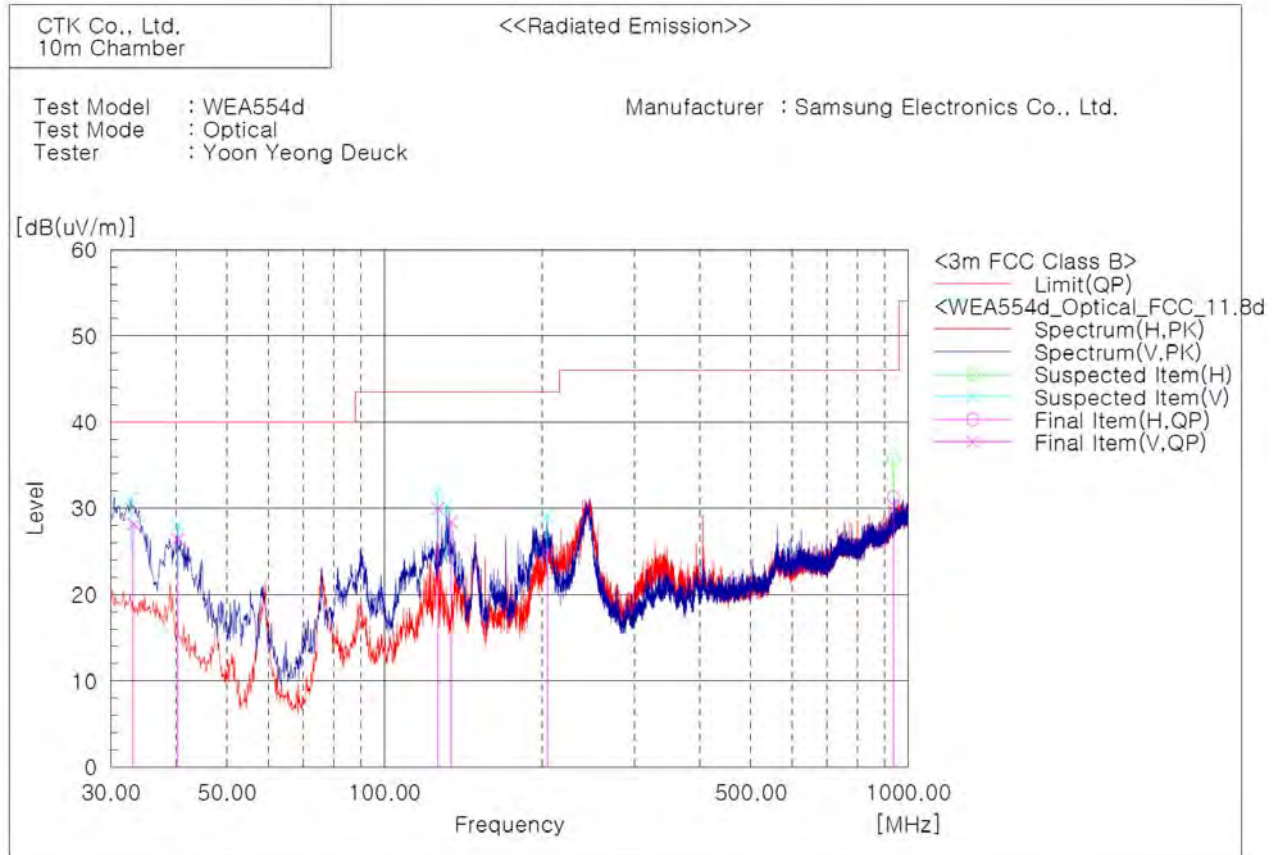
[WEA554d_WAN]



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	34.894	V	35.9	-8.0	27.9	40.0	12.1	100.0	156.9
2	38.345	V	34.2	-9.5	24.7	40.0	15.3	100.0	183.1
3	81.785	V	38.0	-17.4	20.6	40.0	19.4	100.0	245.6
4	133.845	V	41.1	-12.1	29.0	43.5	14.5	100.0	245.3
5	205.984	V	39.7	-14.4	25.3	43.5	18.2	100.0	37.6
6	937.457	H	28.8	5.6	34.4	46.0	11.6	100.0	198.3

[WEA554d_Optical]



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	33.156	V	35.7	-7.5	28.2	40.0	11.8	100.0	148.3
2	40.256	V	37.0	-10.6	26.4	40.0	13.6	100.0	146.5
3	126.452	V	42.3	-12.3	30.0	43.5	13.5	199.9	312.6
4	134.183	V	40.5	-12.1	28.4	43.5	15.1	100.0	236.1
5	204.894	V	39.4	-14.4	25.0	43.5	18.5	100.0	23.6
6	937.148	H	25.8	5.5	31.3	46.0	14.7	100.0	175.1

3.3 Radiated Electric Field Emissions (Above 1 GHz)

Test Date

2018-07-23

Test Location

Unhak-dong Lab 10 m SAC (test distance : 3 m)

Test Equipment

Name of Equipment	Model No.	Manufacturer	Serial No.	Due Date	Applied
EMI Receiver	ESU40	Rohde & Schwarz	100036	2019-04-30	☒
Horn Antenna	BBHA9120D	SCHWARZBECK	01727	2019-10-20	☒
Horn Antenna	BBHA9170	SCHWARZBECK	788	2019-12-05	☒
Low Noise Amplifier	TK-PA18H	TESTEK	160008-L	2018-09-27	☒
Low Noise Amplifier	TK-PA1840H	TESTEK	170018-L	2018-09-27	☒
Band Reject Filter	BRM50702	Micro Tronics	G306	2018-10-30	☒
Band Reject Filter	BRM50716	Micro Tronics	G223	2018-10-30	☒

Test Software

TOYO EMI software Ver. 5.1.0

Frequency Range of Measurement

1 GHz to 40 GHz

Instrument Setting

IF Band Width: 1 MHz

Climate Condition

Temperature: (21 ± 1) °C

Relative Humidity: (59 ± 1) %

Atmospheric Pressure: 100 kPa

Test Result

The requirements are: ☒ MET ☐ NOT MET

Test Mode	Frequency (MHz)	Measured Data (dBμV/m)	Margin (dB)	Remark
WEA554i_POE	17 978.620	46.9	7.1	CAverage
WEA554i_WAN	17 996.280	46.0	8.0	CAverage
WEA554i_Optical	14 685.100	44.8	9.2	CAverage
WEA554d_POE	39 696.990	48.3	5.7	CAverage
WEA554d_WAN	17 991.160	47.0	7.0	CAverage
WEA554d_Optical	39 658.700	48.2	5.8	CAverage

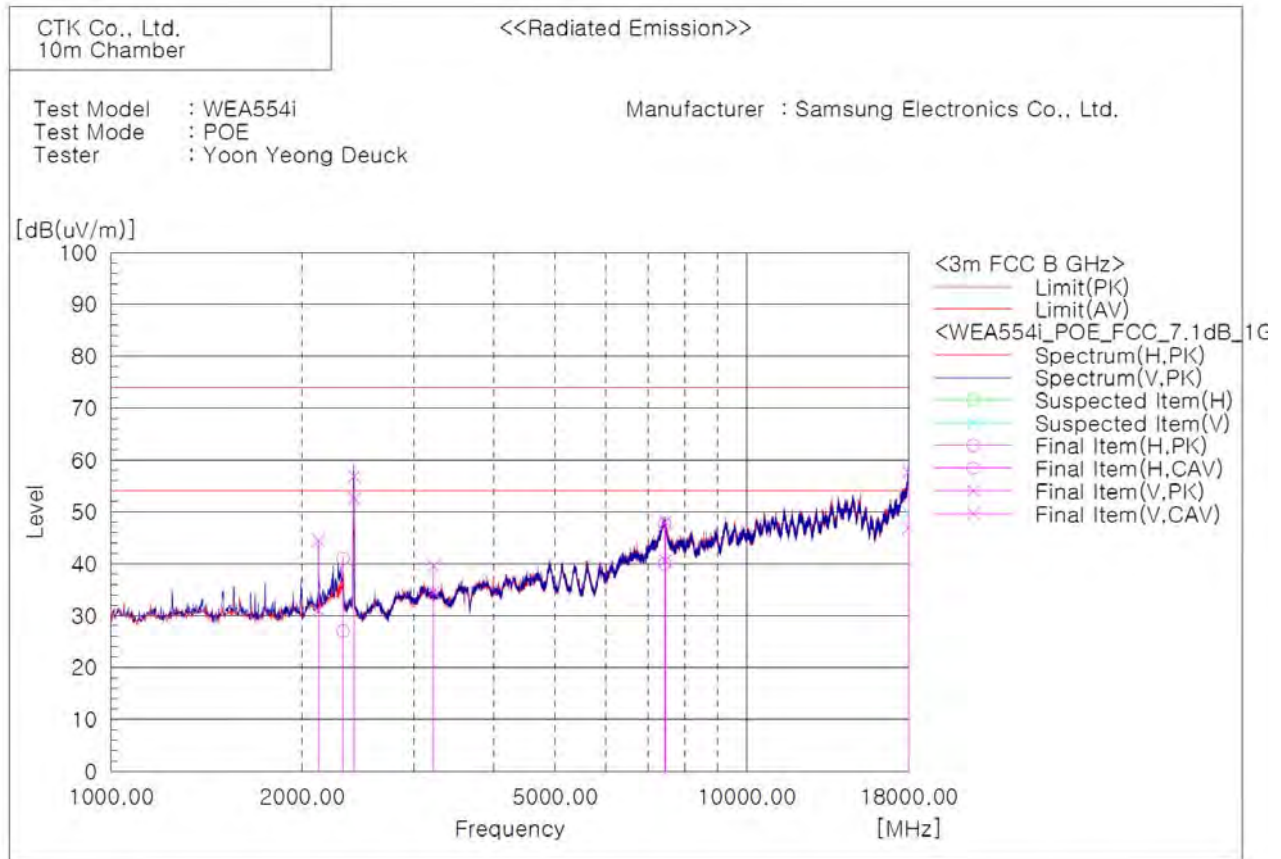
The Result is calculated by using the following formula;

* Result = Reading + Correction factor

* Correction factor = Antenna Factor + Cable Loss– Amp Gain

Test Data

[1 GHz to 18 GHz] [WEA554i_POE]

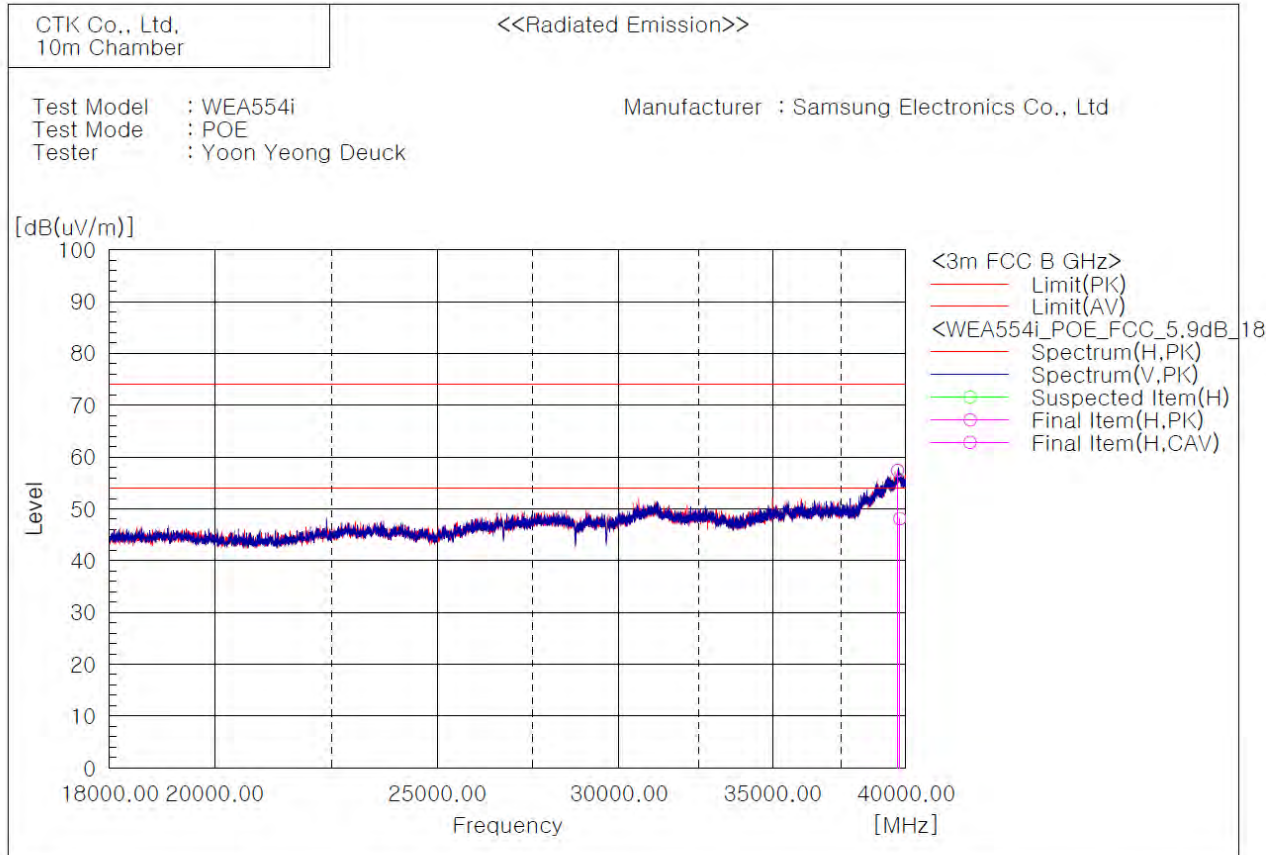


Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Result CAV [dB(μV/m)]	Limit PK [dB(μV/m)]	Limit AV [dB(μV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	2122.210	V	64.6	51.1	-20.1	44.5	31.0	74.0	54.0	29.5	23.0	100.0	126.0
2	2122.212	V	64.6	51.1	-20.1	44.5	31.0	74.0	54.0	29.5	23.0	100.0	263.0
3	2319.670	H	60.8	46.8	-19.8	41.0	27.0	74.0	54.0	33.0	27.0	200.0	301.0
4	2319.740	H	60.8	46.8	-19.8	41.0	27.0	74.0	54.0	33.0	27.0	300.0	218.0
5	2413.210	V	76.8	72.6	-20.0	56.8	52.6	74.0	54.0	17.2	1.4	200.0	126.0
6	2413.230	V	76.8	72.6	-20.0	56.8	52.6	74.0	54.0	17.2	1.4	200.0	119.0
7	3216.411	V	57.9	52.8	-18.3	39.6	34.5	74.0	54.0	34.4	19.5	200.0	129.0
8	3216.470	V	57.9	52.8	-18.3	39.6	34.5	74.0	54.0	34.4	19.5	300.0	126.0
9	7432.225	H	50.2	42.5	-2.5	47.7	40.0	74.0	54.0	26.3	14.0	200.0	78.0
10	7432.490	H	50.2	42.5	-2.5	47.7	40.0	74.0	54.0	26.3	14.0	100.0	69.0
11	7447.550	V	48.4	43.4	-2.8	48.0	40.6	74.0	54.0	26.0	13.4	100.0	110.0
12	7447.587	V	48.4	43.4	-2.8	48.0	40.6	74.0	54.0	26.0	13.4	100.0	77.0
13	17978.100	V	48.4	37.7	9.2	57.6	46.9	74.0	54.0	16.4	7.1	200.0	201.0
14	17978.620	V	48.4	37.7	9.2	57.6	46.9	74.0	54.0	16.4	7.1	200.0	166.0

=> Operating frequency (No. 5, 6) emissions are excluded from test result.

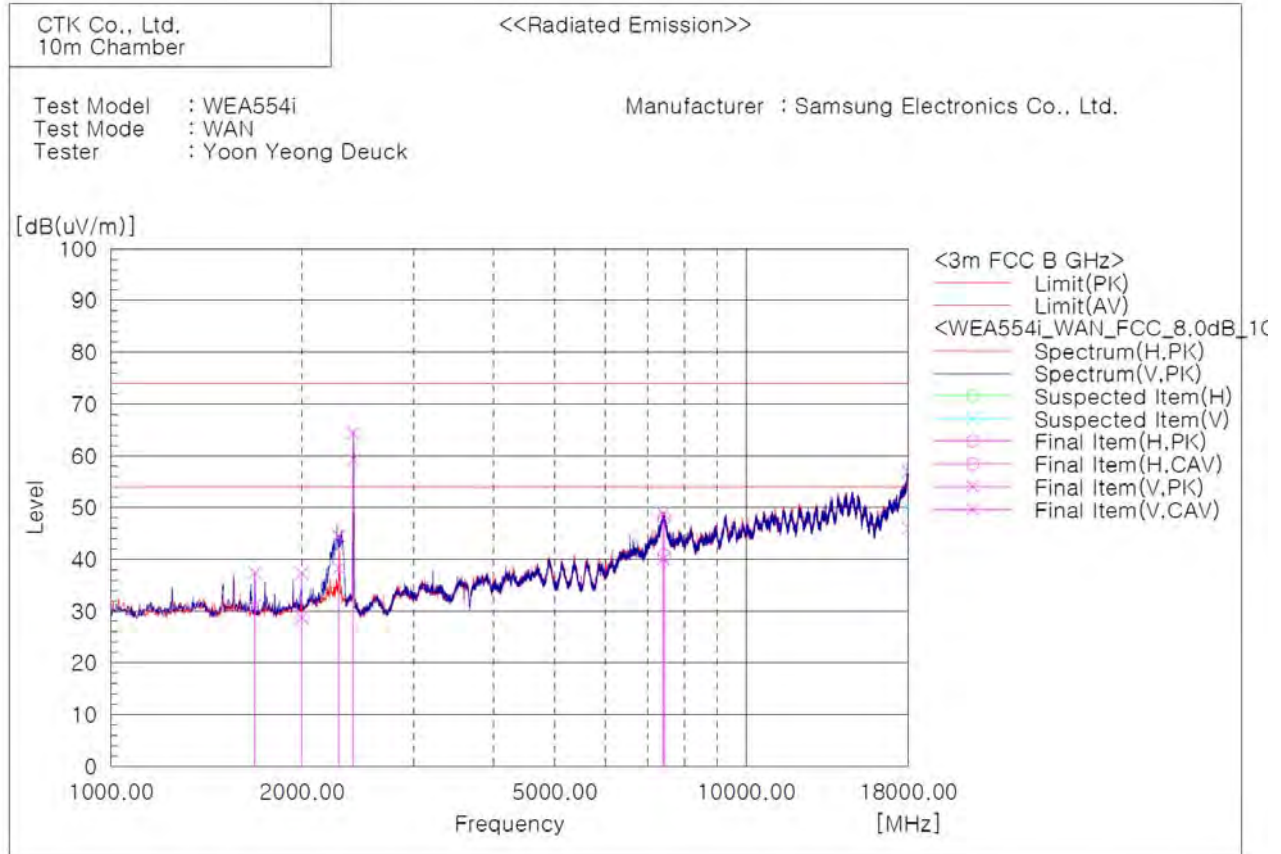
[18 GHz to 40 GHz] [WEA554i_POE]



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	39764.140	H	55.5	46.0	2.1	57.4	48.1	74.0	54.0	16.6	5.9	200.0	58.0
2	39671.220	H	55.5	46.0	1.9	57.4	48.1	74.0	54.0	16.6	5.9	300.0	48.0

[1 GHz to 18 GHz] [WEA554i_WAN]

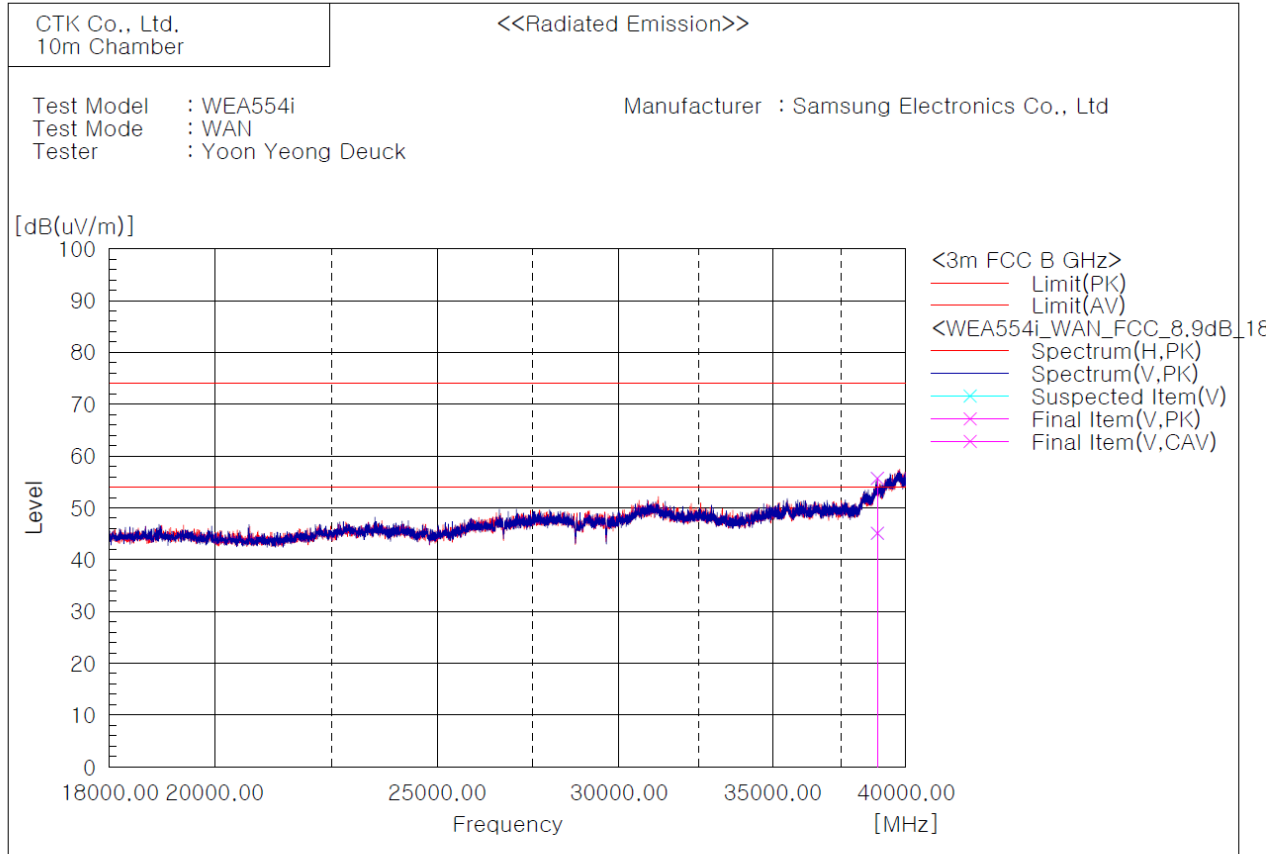


Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	1686.450	V	59.7	53.4	-22.3	37.4	31.1	74.0	54.0	36.6	22.9	100.0	177.0
2	1686.470	V			-22.3			74.0	54.0			100.0	105.0
3	1998.100	V	58.7	50.2	-21.4	37.3	28.8	74.0	54.0	36.7	25.2	300.0	169.0
4	1998.103	V			-21.4			74.0	54.0			200.0	210.0
5	2285.250	V	64.3	58.1	-19.8	44.5	38.3	74.0	54.0	29.5	15.7	300.0	155.0
6	2285.508	V			-19.8			74.0	54.0			200.0	216.0
7	2408.201	V	84.4	79.2	-20.0	64.4	59.2	74.0	54.0	9.6	-5.2	200.0	219.0
8	2408.901	V			-20.0			74.0	54.0			100.0	301.0
9	7404.550	V	51.0	42.3	-2.2	48.8	40.1	74.0	54.0	25.2	13.9	300.0	115.0
10	7404.750	V			-2.2			74.0	54.0			100.0	311.0
11	7432.460	H		43.2	-2.5		40.7	74.0	54.0		13.3	100.0	305.0
12	7432.660	H	50.4		-2.5	47.9		74.0	54.0	26.1		100.0	3.0
13	17996.280	V		36.5	9.5		46.0	74.0	54.0		8.0	100.0	290.0
14	17997.880	V	47.4		9.5	56.9		74.0	54.0	17.1		100.0	

=> Operating frequency (No. 7, 8) emissions are excluded from test result.

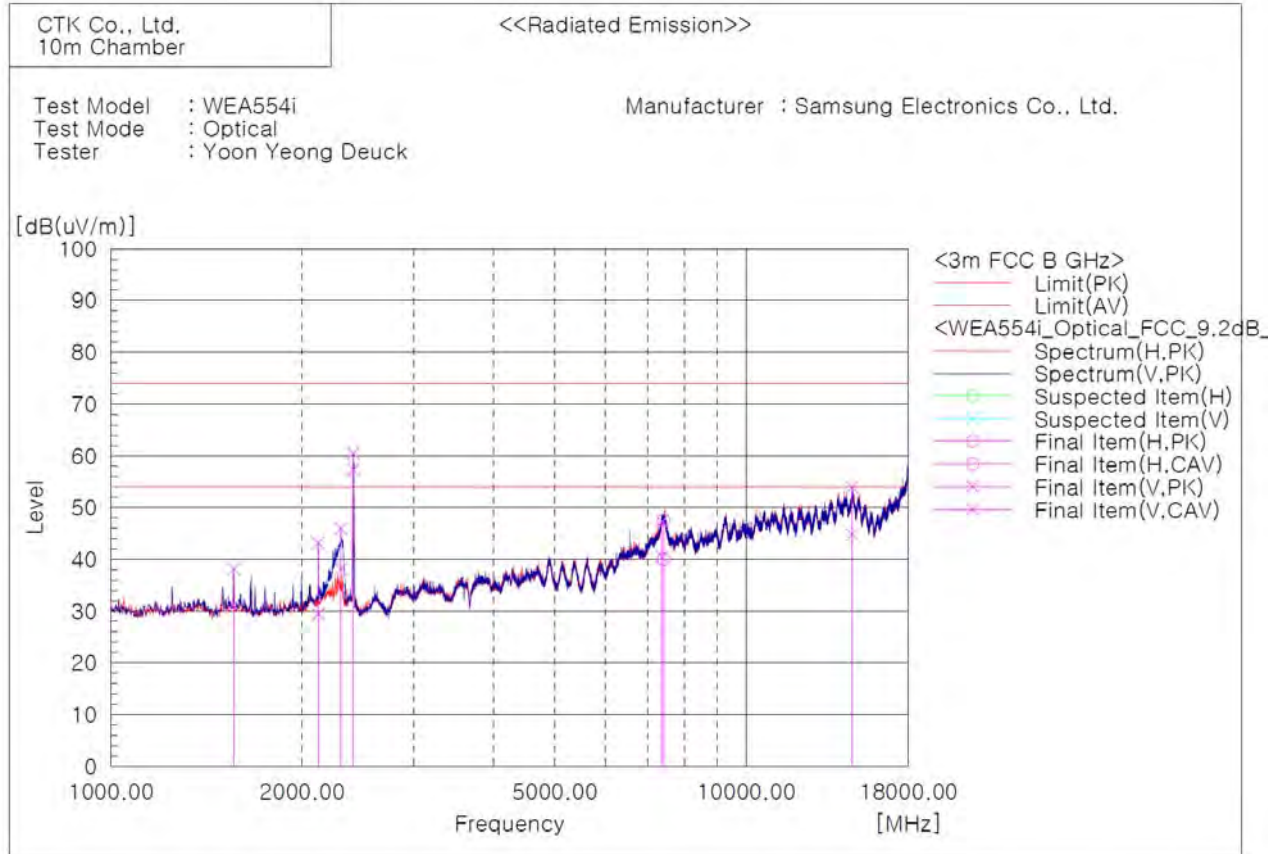
[18 GHz to 40 GHz] [WEA554i_WAN]



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	38874.250	V	55.8	-----	-0.1	55.7	-----	74.0	54.0	18.3	-----	100.0	255.0
2	38873.700	V	-----	45.2	-0.1	-----	45.1	74.0	54.0	-----	8.9	300.0	199.0

[1 GHz to 18 GHz] [WEA554i_Optical]

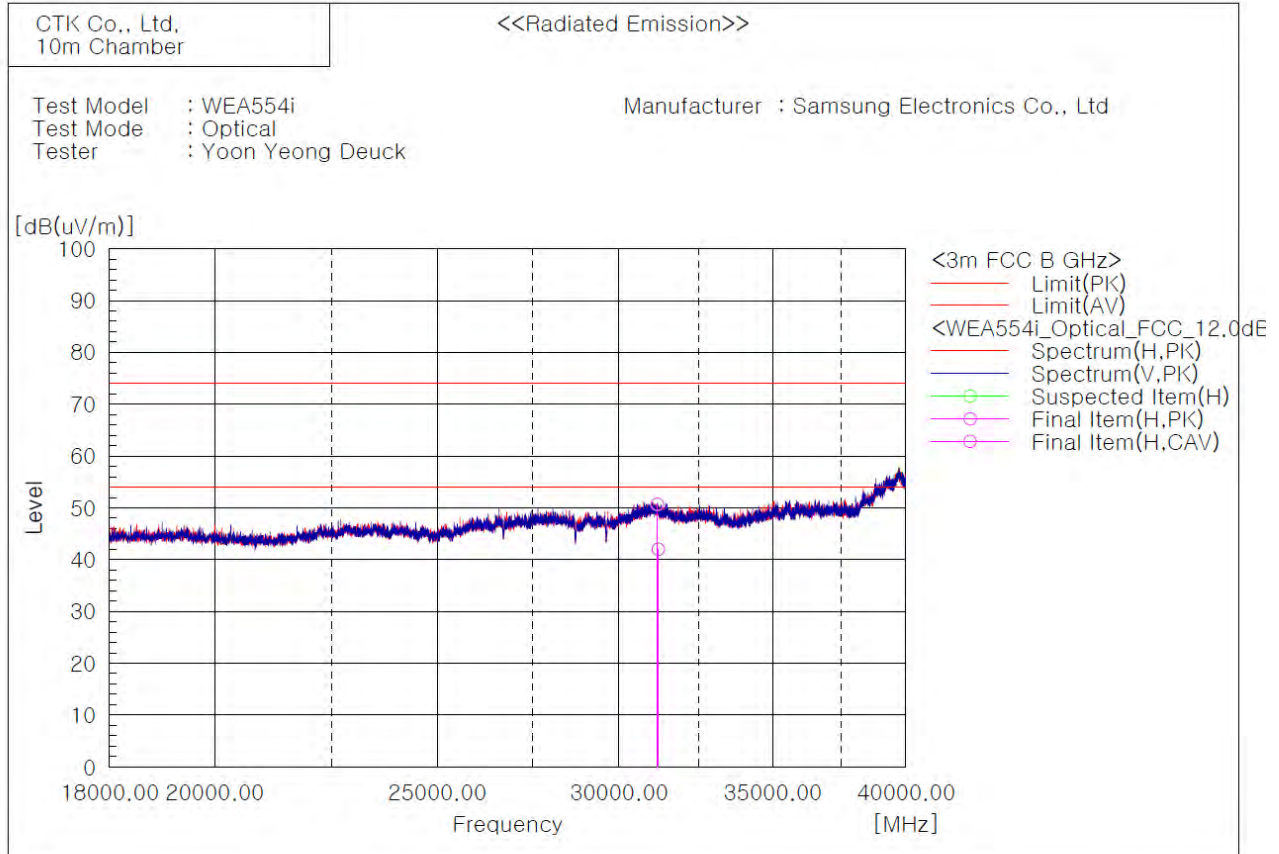


Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	1561.120	V		52.9	-21.7		31.2	74.0	54.0		22.8	100.0	132.0
2	1561.220	V	59.9		-21.7	38.2		74.0	54.0	35.8		100.0	107.0
3	2122.109	V	63.3		-20.1	43.2		74.0	54.0	30.8		200.0	199.0
4	2122.260	V		49.5	-20.1		29.4	74.0	54.0		24.6	200.0	214.0
5	2301.252	V	65.7		-19.8	45.9		74.0	54.0	28.1		200.0	211.0
6	2302.520	V		58.0	-19.8		38.2	74.0	54.0		15.8	300.0	185.0
7	2408.501	V	80.5		-20.0	60.5		74.0	54.0	13.5		300.0	310.0
8	2408.901	V		77.3	-20.0		57.3	74.0	54.0		-3.3	200.0	319.0
9	7372.140	V	50.2		-2.9	47.3		74.0	54.0	26.7		100.0	150.0
10	7372.158	V		43.4	-2.9		40.5	74.0	54.0		13.5	200.0	215.0
11	7415.370	H		42.3	-2.3		40.0	74.0	54.0		14.0	300.0	159.0
12	7415.400	H	49.8		-2.3	47.5		74.0	54.0	26.5		300.0	120.0
13	14685.100	V		40.5	4.3		44.8	74.0	54.0		9.2	200.0	100.0
14	14685.220	V	49.6		4.3	53.9		74.0	54.0	20.1		200.0	117.0

=> Operating frequency (No. 7, 8) emissions are excluded from test result.

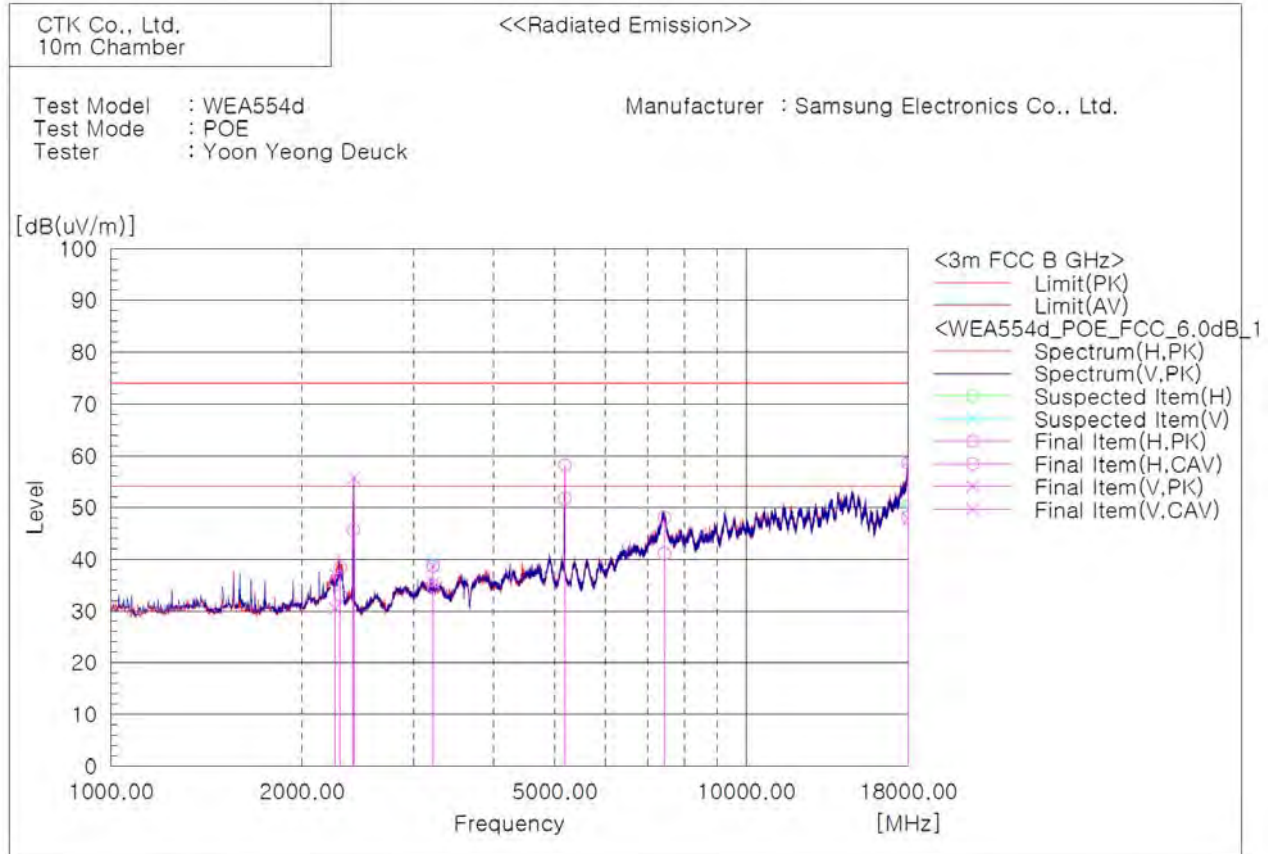
[18 GHz to 40 GHz] [WEA554i_Optical]



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	31175.480	H	53.9	-----	-3.2	50.7	-----	74.0	54.0	23.3	-----	200.0	211.0
2	31208.700	H	-----	45.2	-3.2	-----	42.0	74.0	54.0	-----	12.0	200.0	166.0

[1 GHz to 18 GHz] [WEA554d_POE]

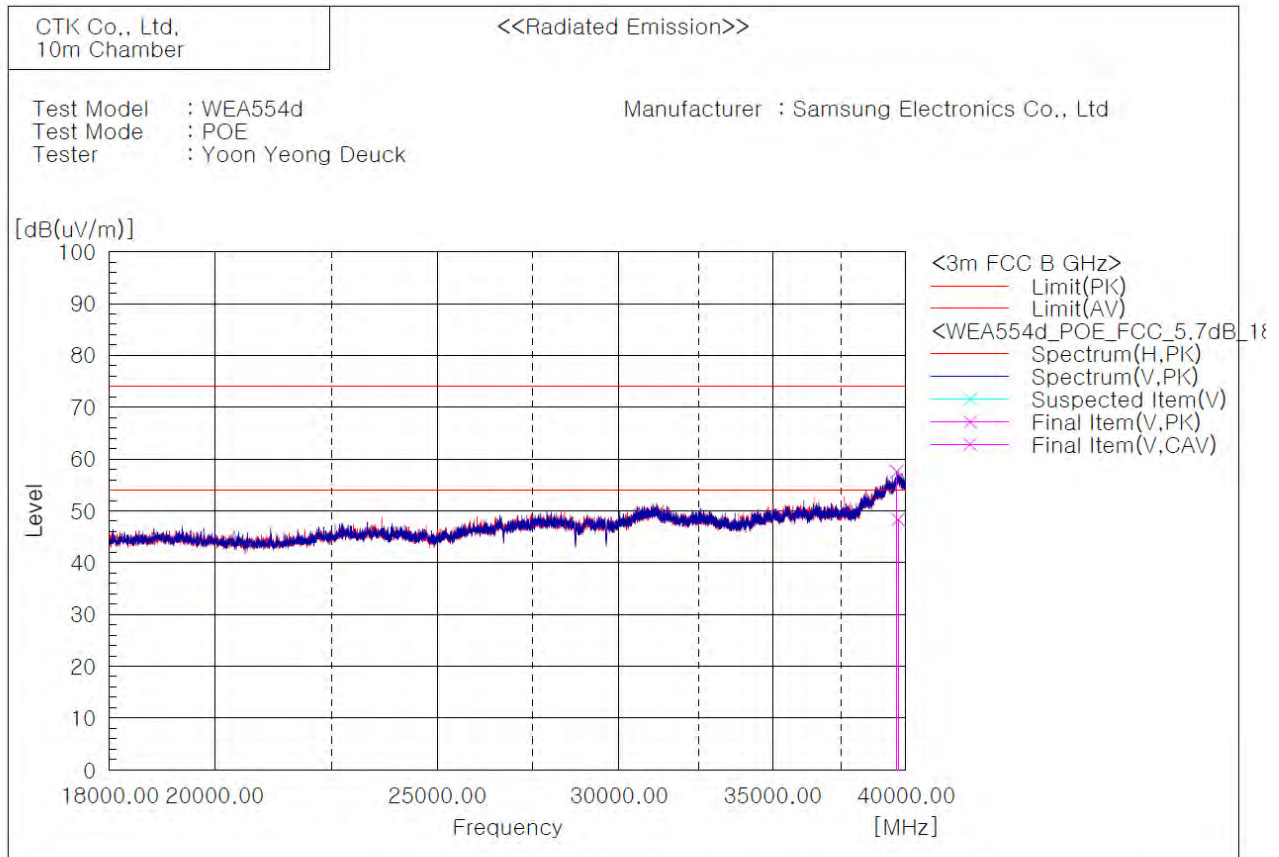


Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	2255.455	V	56.7	50.2	-19.7	37.0	30.5	74.0	54.0	37.0	23.5	200.0	99.0
2	2255.900	V		52.8	-19.7		33.0	74.0	54.0		21.0	200.0	45.0
3	2298.410	H	58.2	65.7	-19.8	38.4	45.7	74.0	54.0	35.6	8.3	400.0	321.0
4	2298.410	H			-20.0			74.0	54.0			200.0	299.0
5	2408.910	H	75.7	53.6	-18.3	55.7	35.3	74.0	54.0	18.3	18.7	200.0	266.0
6	2413.306	V			-18.3			74.0	54.0			200.0	199.0
7	3216.416	V		53.1	-18.3		34.8	74.0	54.0		19.2	300.0	309.0
8	3216.480	V	57.0	64.6	-18.3	38.7	51.7	74.0	54.0	35.3	2.3	300.0	257.0
9	3216.490	H	57.0		-12.8	38.7		74.0	54.0	35.3		200.0	187.0
10	3216.690	H			-12.8			74.0	54.0			200.0	309.0
11	5184.147	H	71.0		-2.6	58.2	41.1	74.0	54.0	15.8	12.9	200.0	290.0
12	5186.210	H		43.7	-2.6	48.0	47.8	74.0	54.0	26.0	6.2	200.0	263.0
13	7440.800	H	50.6	38.5	9.3		48.0	74.0	54.0		6.0	400.0	41.0
14	7440.899	V		38.7	9.3			74.0	54.0			200.0	104.0
15	17985.160	V			9.3			74.0	54.0			300.0	322.0
16	17985.190	H	49.3		9.3	58.6		74.0	54.0	15.4		200.0	199.0
17	17985.250	H	49.5		9.5	59.0		74.0	54.0	15.0		200.0	321.0
18	17995.150	V										400.0	

=> Operating frequency (No. 5, 6, 11, 12) emissions are excluded from test result.

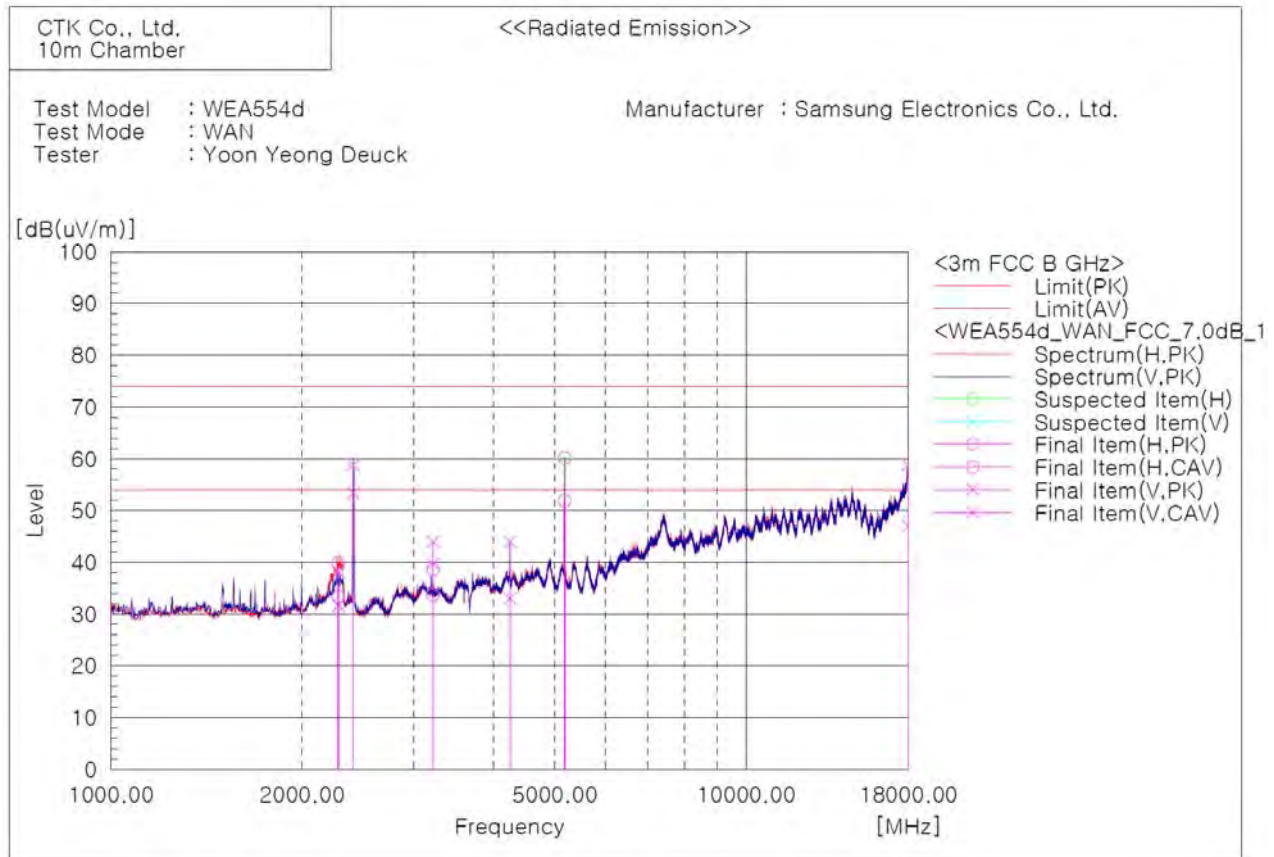
[18 GHz to 40 GHz] [WEA554d_POE]



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	39637.250	V	55.8		1.8	57.6		74.0	54.0	16.4		100.0	139.0
2	39696.990	V		46.4	1.9		48.3	74.0	54.0		5.7	200.0	116.0

[1 GHz to 18 GHz] [WEA554d_WAN]

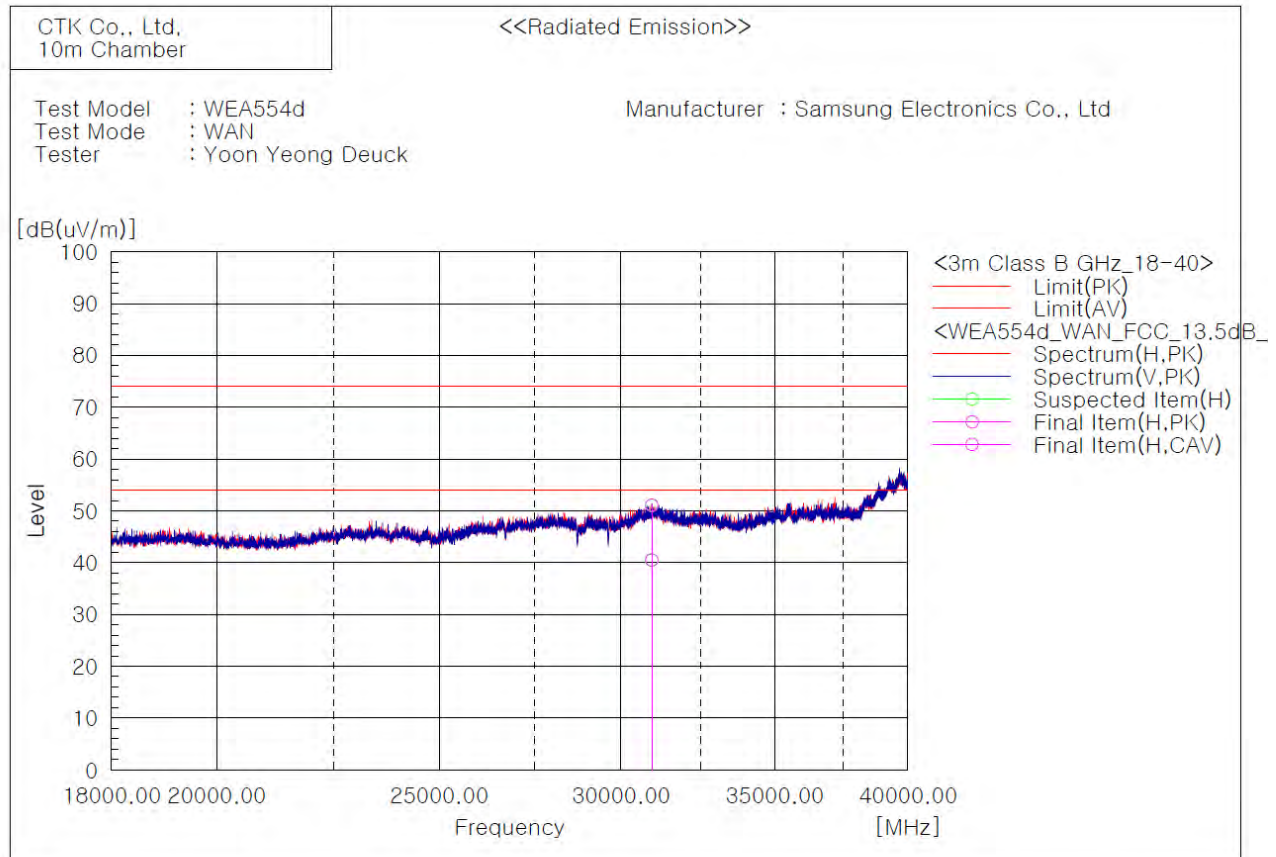


Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	2281.450	H	59.7	53.2	-19.8	39.9	33.4	74.0	54.0	34.1	20.6	300.0	155.0
2	2281.450	H	59.7	53.2	-19.8	39.9	33.4	74.0	54.0	34.1	20.6	300.0	299.0
3	2283.410	V	57.9	51.5	-19.8	38.1	31.7	74.0	54.0	35.9	22.3	300.0	269.0
4	2283.630	V	57.9	51.5	-19.8	38.1	31.7	74.0	54.0	35.9	22.3	300.0	255.0
5	2408.470	V	78.8	73.4	-20.0	58.8	53.4	74.0	54.0	15.2	0.6	300.0	46.0
6	2408.550	V	78.8	73.4	-20.0	58.8	53.4	74.0	54.0	15.2	0.6	300.0	55.0
7	3216.158	H	62.2	52.0	-18.3	43.9	33.7	74.0	54.0	30.1	20.3	200.0	321.0
8	3216.250	V	62.2	52.0	-18.3	43.9	33.7	74.0	54.0	30.1	20.3	100.0	126.0
9	3216.410	V	62.2	52.0	-18.3	43.9	33.7	74.0	54.0	30.1	20.3	100.0	169.0
10	3216.500	H	56.9	58.0	-18.3	38.6	39.7	74.0	54.0	35.4	14.3	200.0	287.0
11	4249.254	V	59.8	48.9	-15.9	43.9	33.0	74.0	54.0	30.1	21.0	100.0	352.0
12	4249.339	V	59.8	48.9	-15.9	43.9	33.0	74.0	54.0	30.1	21.0	100.0	174.0
13	5182.109	H	73.1	64.8	-12.9	60.2	51.9	74.0	54.0	13.8	2.1	100.0	216.0
14	5182.558	H	73.1	64.8	-12.9	60.2	51.9	74.0	54.0	13.8	2.1	100.0	126.0
15	17990.150	V	49.4	37.6	9.4	58.8	47.0	74.0	54.0	15.2	7.0	300.0	265.0
16	17991.160	V	49.4	37.6	9.4	58.8	47.0	74.0	54.0	15.2	7.0	200.0	212.0

=> Operating frequency (No. 5, 6, 13, 14) emissions are excluded from test result.

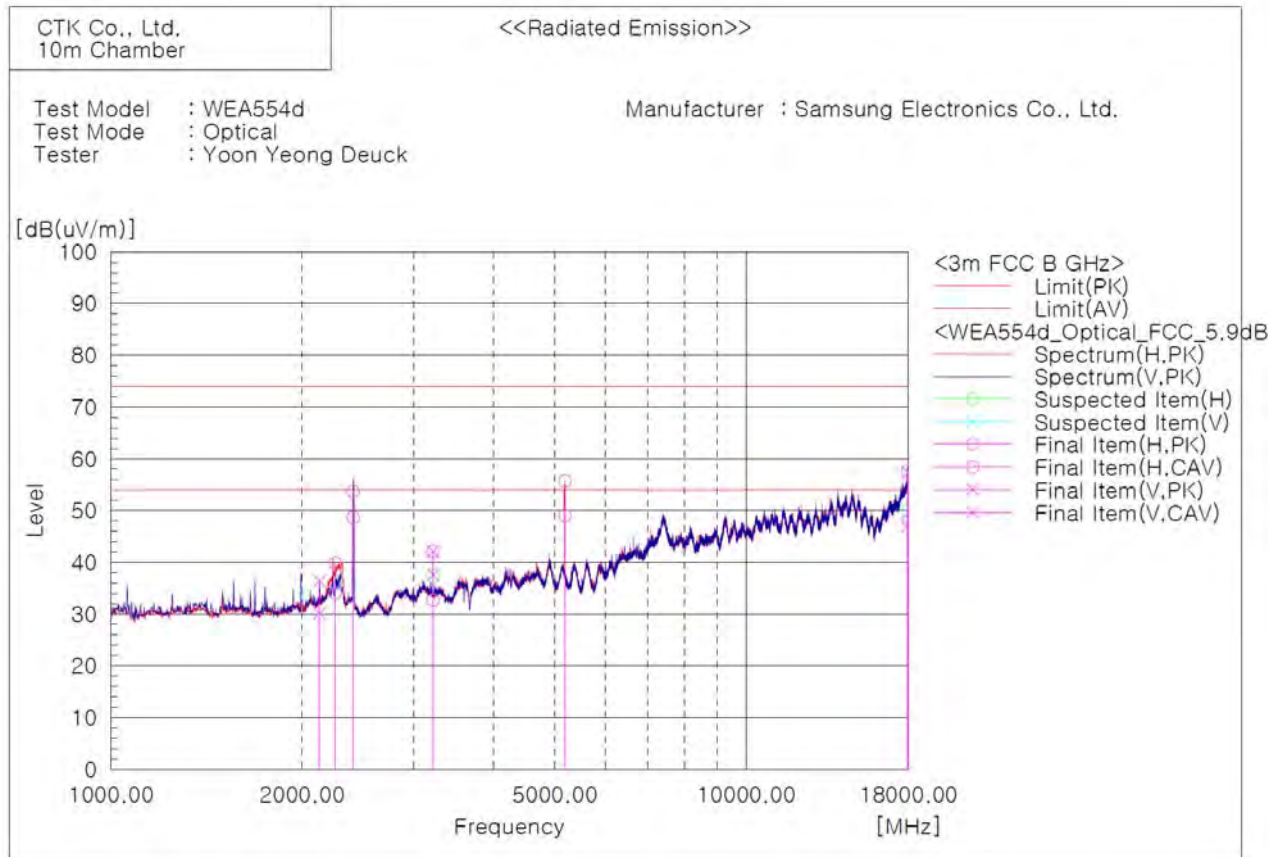
[18 GHz to 40 GHz] [WEA554d_WAN]



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	30941.300	H	43.5	43.5	-3.0	40.5	40.5	74.0	54.0	22.9	13.5	199.6	128.1
2	30941.490	H	54.1	54.1	-3.0	51.1	51.1	74.0	54.0	22.9	13.5	100.0	231.6

[1 GHz to 18 GHz] [WEA554d_Optical]

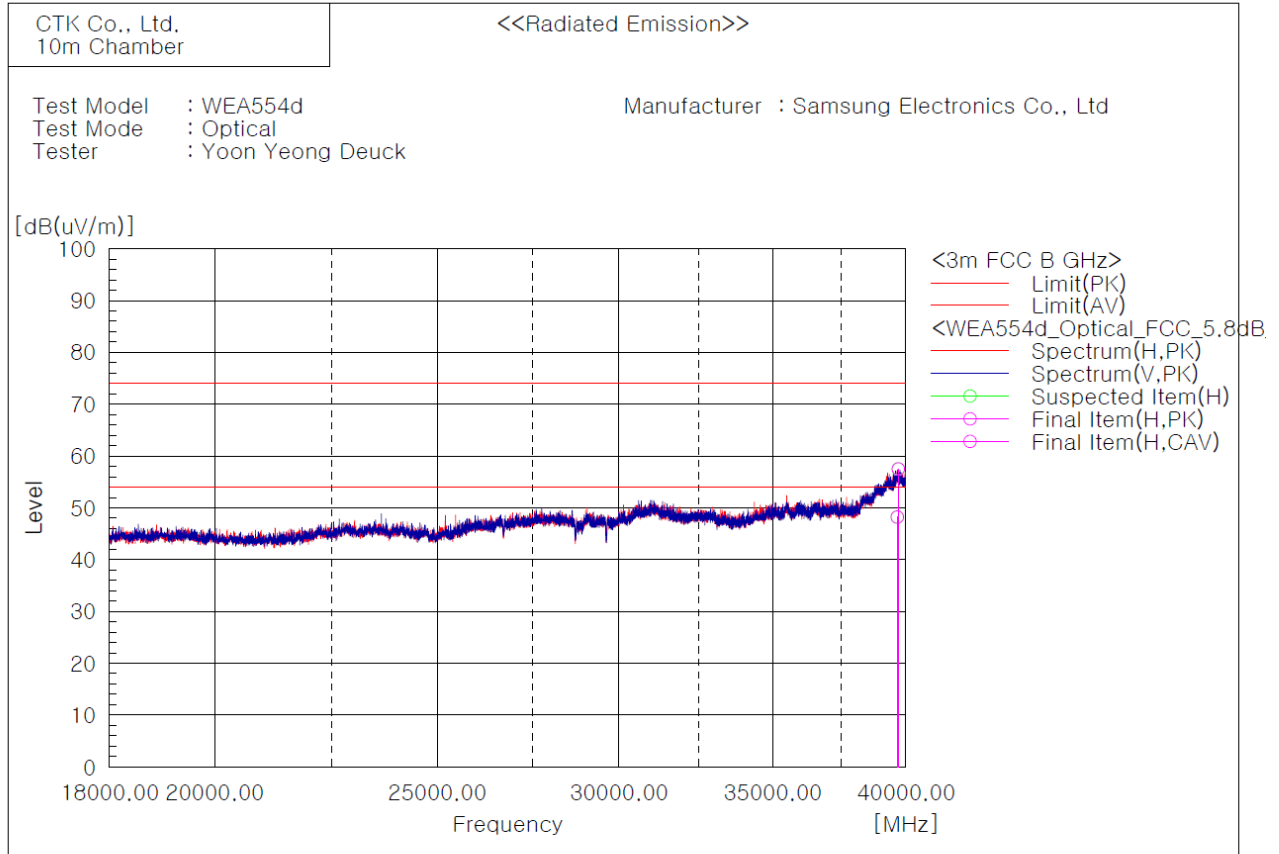


Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	2130.280	V	56.4	50.1	-20.0	36.4	30.1	74.0	54.0	37.6	23.9	200.0	266.0
2	2130.490	V		53.7	-20.0		34.0	74.0	54.0		20.0	300.0	106.0
3	2255.366	H			-19.7			74.0	54.0			400.0	315.0
4	2255.521	H	59.5	68.7	-19.7	39.8	48.7	74.0	54.0	34.2	5.3	300.0	211.0
5	2408.102	H			-20.0			74.0	54.0			200.0	211.0
6	2408.632	H	73.7	51.0	-20.0	53.7	32.7	74.0	54.0	20.3	21.3	200.0	120.0
7	3216.410	H			-18.3			74.0	54.0			200.0	33.0
8	3216.410	H	60.4	55.9	-18.3	42.1	37.6	74.0	54.0	31.9	16.4	200.0	299.0
9	3216.482	V			-18.3			74.0	54.0			200.0	322.0
10	3216.687	V	60.4		-18.3	42.1		74.0	54.0	31.9		200.0	309.0
11	5186.105	H	68.6		-12.9	55.7		74.0	54.0	18.3		100.0	269.0
12	5186.550	H		61.8	-12.8		49.0	74.0	54.0		5.0	100.0	199.0
13	17966.110	V		38.1	8.9		47.0	74.0	54.0		7.0	400.0	325.0
14	17966.170	V	48.4		8.9	57.3		74.0	54.0	16.7		200.0	32.0
15	17978.140	H	48.4		9.2	57.6		74.0	54.0	16.4		200.0	311.0
16	17978.630	H		38.9	9.2		48.1	74.0	54.0		5.9	300.0	150.0

=> Operating frequency (No. 5, 6, 11, 12) emissions are excluded from test result.

[18 GHz to 40 GHz] [WEA554d_Optical]



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	39658.700	H	-----	46.4	1.8	-----	48.2	74.0	54.0	-----	5.8	100.0	311.0
2	39700.330	H	55.6	-----	1.9	57.5	-----	74.0	54.0	16.5	-----	200.0	255.0