47 CFR Part 15 Subpart B

Electromagnetic Compatibility Test Report

For

Tablet

ORDER NO.: 200414K003

REPORT NO.: FC200414K003 R3

ISSUED DATE: 13, July, 2020

MODEL NO.: SM-T975

Samsung Electronics Co.,Ltd.

129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Republic of Korea

Certificate #4068.03

Test Report Details

Test Report No.	FC200414K003 R3
Tests Performed By:	Bureau Veritas CPS ADT Korea Ltd. Innoplex No.2 106, Sinwon-ro 306, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Republic of Korea
Test site:	Bureau Veritas CPS ADT Korea Ltd. HeungAn-daero 49, DonAn-gu, Anyang-si, Gyeonggi-do, 11419 Republic of Korea
Applicant:	Samsung Electronics Co.,Ltd. 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Republic of Korea
Product Type:	Tablet
Model Number:	SM-T975
FCC ID	A3LSMT975
Product standards:	47 CFR Part 15 Subpart B / ANSI C63.4-2014
FCC Classification	Class B
Sample IMEI Number:	359350290006614
Sample Serial Number:	R32N50040AB
Sample Receive Date:	14, May, 2020
Testing Start Date:	14, May, 2020
Date Testing Complete:	02, June, 2020
Overall Results:	**Complied**

RELEASE CONTROL RECORD

REPORT NO.	REASON FOR CHANGE	DATE ISSUED
FC200414K003	Original release	29, June, 2020
FC200414K003 R1	Add the test mode detail	08, July, 2020
FC200414K003 R2	Revision of test mode	10, July, 2020
FC200414K003 R3	Revision of section 2.2 Technical Data	13, July, 2020

This project has been tested and verified to comply with the requirements of ***Bureau Veritas CPS ADT Korea Ltd.*** Therefore, this certificate is issued.

PREPARED BY : _____ , **DATE :** 13. July. 2020
Bob Kim / Senior Engineer

APPROVED BY : _____ , **DATE :** 13. July. 2020
Wan Kim / Senior Manger

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1. EMC Result Conclusion (With Justification)

The following tests were performed on a sample submitted for evaluation of compliance with 47 CFR Part 15.109 (b) Class B			
Test requirements	**Standard**	**Results**	**Verdict**
Emissions			
Radiated RF Emissions	ANSI C63.4	Pass	Complied
We tested the Tablet, Model: SM-T975, to determine if it was in compliance with the relevant standards as marked on the EMC Verification Summary. We found that the unit met the requirement of 47 CFR Part 15 Subpart B / ANSI C63.4-2014 standards when tested as received. The production units are required to conform to the initial sample as received when the units are placed on the market.			

2. General Product Description

2.1 Equipment Description

The Equipment under Test (EUT) is the Tablet.
The test data contained in this report pertains only to the emissions due to receiver circuitry of the licensed transmitter of the EUT.

2.2 Technical Data

This device contains the following capabilities.

GSM 850/1900, WCDMA (B1/B2/B5), LTE (B2/B4/B5/B12/B13/B25/B26/B41/B66), 802.11 a/b/g/n/ac/ax 2.4/5GHz (WiFi Direct, RSDB), Bluetooth (EDR, LE), WPT(for S-pen Charging).

The device contains receivers which tune and operating between 30 MHz ~ 960 MHz in the following bands:
GSM 850, WCDMA B5, LTE B5, LTEB 12, LTE B13, LTE B26

3. Test Condition

3.1 Ancillary Equipment

Use*	Product Type	Manufacturer	Model	FCC ID
EUT	Tablet	Samsung Electronics Co.,Ltd.	SM-T975	A3LSMT975
AE	Earphone	Bujeon Electronics Inc.	GHSS028-K7	-
AE	Keyboard	Samsung Electronics Co.,Ltd.	EF-DT970	-
AE	TRAVEL ADAPTER	SOLUM VINA COMPANY LIMITED	EP-TA200	-
AE	Wide Band Radio Communication Tester	R&S	CMW500	DoC
* **Note:** EUT – Equipment Under Test, AE – Auxiliary/Associated Equipment, SIM – Simulator (Not Subjected to Test)				

3.2 Input/Output Ports

Port #	Name	Type*	Cable (m) Max. >3 m	Cable Shielded	Comments
1	Power	DC	1.0	None-Shielded	EUT USB Port (C Type)
2	Power	AC	-	None-Shielded	TRAVEL ADAPTER
* Note: * AC = AC Power Port, DC = DC Power Port, N/E = Non-Electrical, I/O = Signal Input or Output Port (Not Involved in Process Control), TP = Telecommunication Ports					

3.3 Power Interface

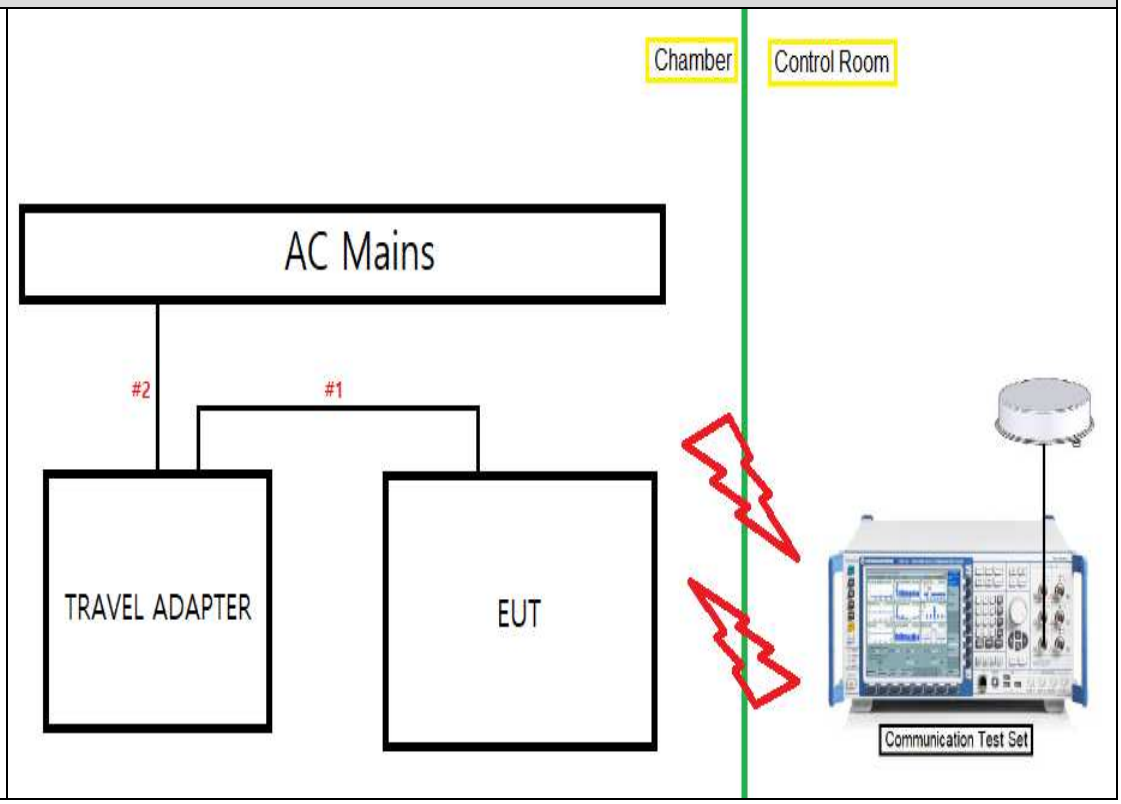
Mode #	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Comments
Rated	3.85	-	-	DC	EUT
1	120	-	-	AC-60	TRAVEL ADAPTER

3.4 Modes of Description

Mode #	Mode	Comments
1	GSM 850	Rx Frequency range: (869.2 to 893.8) MHz
2	WCDMA Band 5	Rx Frequency range: (869 to 894) MHz
3	LTE Band 12	Rx Frequency range: (729 to 746) MHz
4	LTE Band 13	Rx Frequency range: (746 to 756) MHz
5	(LTE Band 5, LTE Band 26)Note3)	LTE Band 5 Rx Frequency range : (869 to 894) MHz LTE Band 26 Rx Frequency range : (859 to 894) MHz

Note1) The EUT Tested while operating in licensed band (Receiver Mode)
Note2) EUT was investigated in three orthogonal orientations X, Y and Z it was determined that X orientation was worst-case orientation.
Note3) LTE Band 5 (Frequency range: 869 to 894 MHz) is covered by LTE Band 26 (Frequency range: 859 to 894 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

3.5 Configuration

Description	
# 1	

4. Test Condition and Results

4.1 Radiated Emissions

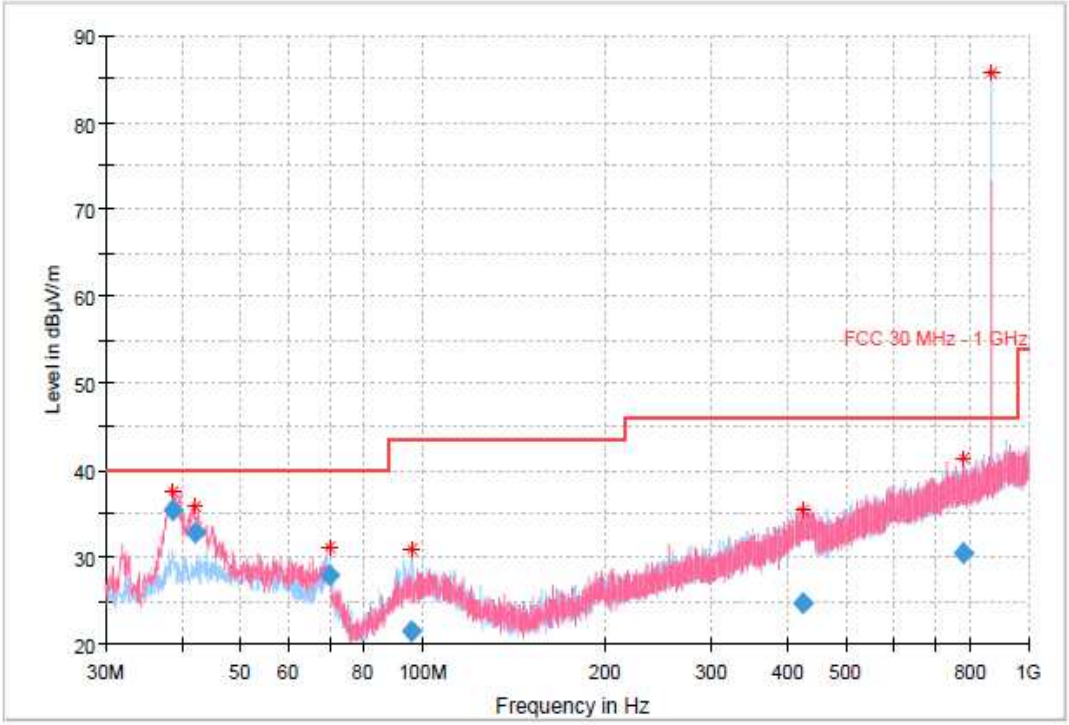
TEST: Limits for radiated disturbance				
Method	Measurements were made in a 10-meter semi-anechoic chamber that complies to ANSI C63.4. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 10-meter. The EUT was rotated 360° about its azimuth with the receive antenna located at 1, 2, 3 and 4 meter heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.			
Parameters recorded during the test	Laboratory Ambient Temperature		(21.4 - 23.1) °C	
	Relative Humidity		(45.3 - 46.3) %	
	Frequency range		**Measurement Point**	
Fully configured sample scanned over the following frequency range	30 MHz – 1 000 MHz		3 meter measurement distance	
	1 000 MHz – 10 000 MHz		3 meter measurement distance	
Limits – Class B				
Frequency (MHz)	Limit (dBµV/m)			
Below 1 GHz	Quasi-Peak		Results	
30 to 88	40		**Pass**	
88 to 216	43.5		**Pass**	
216 to 960	46		**Pass**	
960 to 1 000	54		**Pass**	
Above 1 GHz	Average	Peak	Result	
1 000 to 10 000	54	74	**Pass**	**Pass**
EUT Configuration Settings:				
Power Interface Mode # (See Section 3.3)	EUT Operation Mode # (See Section 3.4)		EUT Configurations Mode # (See Section 3.5)	
1	1, 2, 3, 4, 5		1	

Test Equipment Used					
Description	**Manufacturer**	**Model**	**Identifier**	**Cal. Date**	**Cal. Due**
EMI Test Receiver	R&S	ESW44	101812	2020.02.20	2021.02.20
Trilog Antenna (with 6 dB ATT.)	Schwarzbeck	VULB 9163	01199	2019.04.03	2021.04.03
Horn Antenna	R&S	HF907	102773	2020.02.10	2021.02.10
Signal Conditioning Unit	R&S	SCU08F2	08400016	2019.12.30	2020.12.30
Signal Conditioning Unit	R&S	SCU-18F	180111	2019.12.30	2020.12.30
Wide Band Radio Communication Tester	R&S	CMW500	133256	2019.12.27	2020.12.27
SoftWare	R&S	EMC 32	Ver. 10.35.10	-	-

Note1) Two graphs measured for both Vertical and Horizontal of the Antenna are combined into one graph.
Note2) Formula
Final Value (PK and/or QP and/or CAV) = Reading Value (PK and/or QP and/or CAV) + Corr. (Antenna Factor + Cable Loss + Distance Correction - Amplifier Gain)
Margin (PK and/or QP and/or CAV) = Limit – Final Value (PK and/or QP and/or CAV)
PK = Peak, QP = Quasi-Peak, CAV = CISPR-Average, Corr. = Correction Factor
Note3) Distance (Antenna to Centre of Turntable), Antenna Height
Below 1 GHz, Distance = 3 m, Antenna Height = (1 to 4) m
Above 1 GHz, Distance = 4.5 m, Antenna Height (Considering size of EUT) = (1 to 4) m
Distance Correction = 20 log (d2 (m) / d1 (m)) = 20 log (4.5 / 3) = **3.5**

Table 1. Radiated emission Test data

Below 1 GHz (Mode1: GSM 850 Low CHNNEL 869.2 MHz)



Critical Freqs

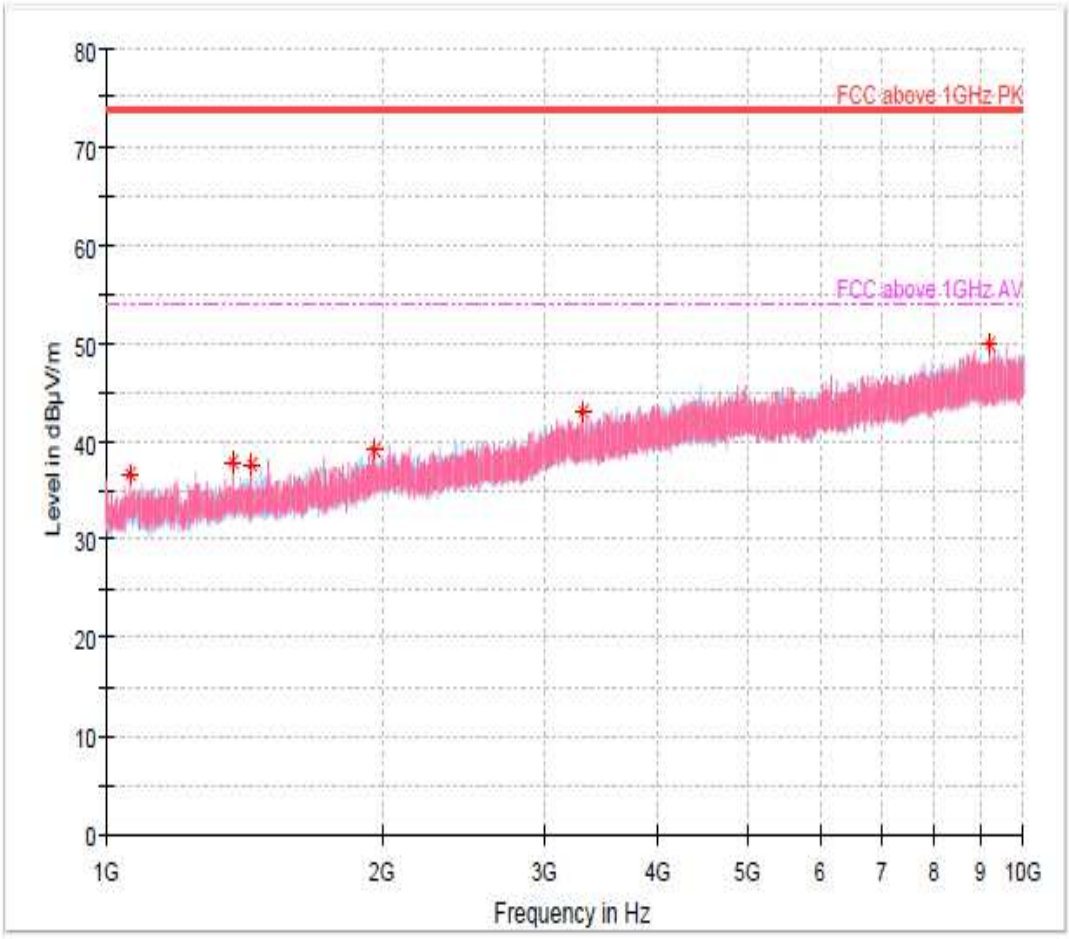
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
38.705556	37.48	40.00	2.52	100.0	V	334.0	-11.1
42.161667	35.82	40.00	4.18	100.0	V	0.0	-10.5
70.142222	31.10	40.00	8.90	300.0	H	65.0	-14.6
95.615556	30.85	43.50	12.65	200.0	H	80.0	-12.3
423.079444	35.36	46.00	10.64	100.0	V	225.0	-5.9
781.228333	41.38	46.00	4.62	200.0	V	265.0	-0.6
869.157778	85.74	46.00	-39.74	200.0	H	4.0	0.1

Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
38.705556	35.45	40.00	4.55	100.0	V	334.0	-11.1
42.161667	32.93	40.00	7.07	100.0	V	0.0	-10.4
70.142222	27.91	40.00	12.09	300.0	H	65.0	-14.8
95.615556	21.56	43.50	21.94	200.0	H	80.0	-12.4
423.079444	24.76	46.00	21.24	100.0	V	225.0	-5.9
781.228333	30.56	46.00	15.44	200.0	V	265.0	-0.6

Note1) Unwanted emissions captured from 824MHz to 849MHz and from 869MHz to 894MHz were the TX and RX signals generated from the call-simulator.

Above 1 GHz (Mode1: GSM 850 Low CHNNEL 869.2 MHz)

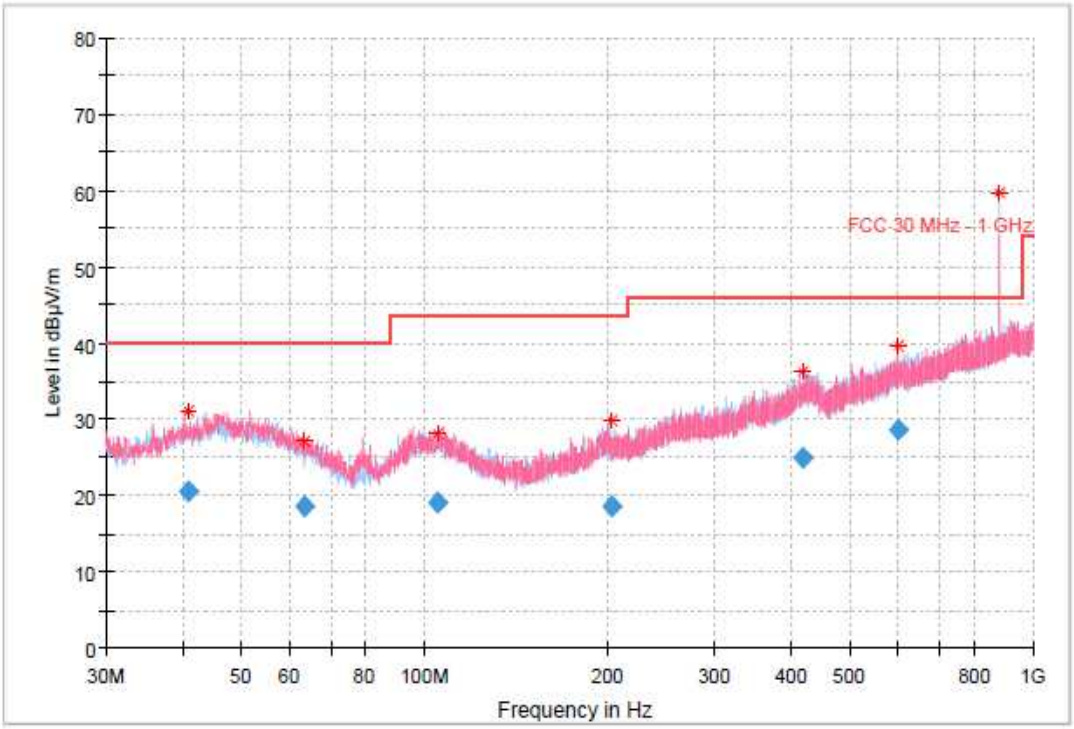


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1062.470588	36.59	---	74.00	37.41	200.0	V	0.0	-11.0
1375.352941	37.93	---	74.00	36.07	200.0	H	0.0	-9.6
1437.294118	37.64	---	74.00	36.36	200.0	V	44.0	-9.3
1957.705882	39.12	---	74.00	34.88	100.0	V	339.0	-6.8
3315.382353	43.12	---	74.00	30.88	100.0	V	243.0	-2.7
9193.176471	49.95	---	74.00	24.06	200.0	V	200.0	5.5

Note1) Emission was scanned 1 GHz to 10 GHz; No emissions were detected above the noise floor which was at least 20 dB below the specification limit.

Below 1 GHz (Mode1: GSM 850 Mid CHNNEL 881.5 MHz)



Critical Freqs

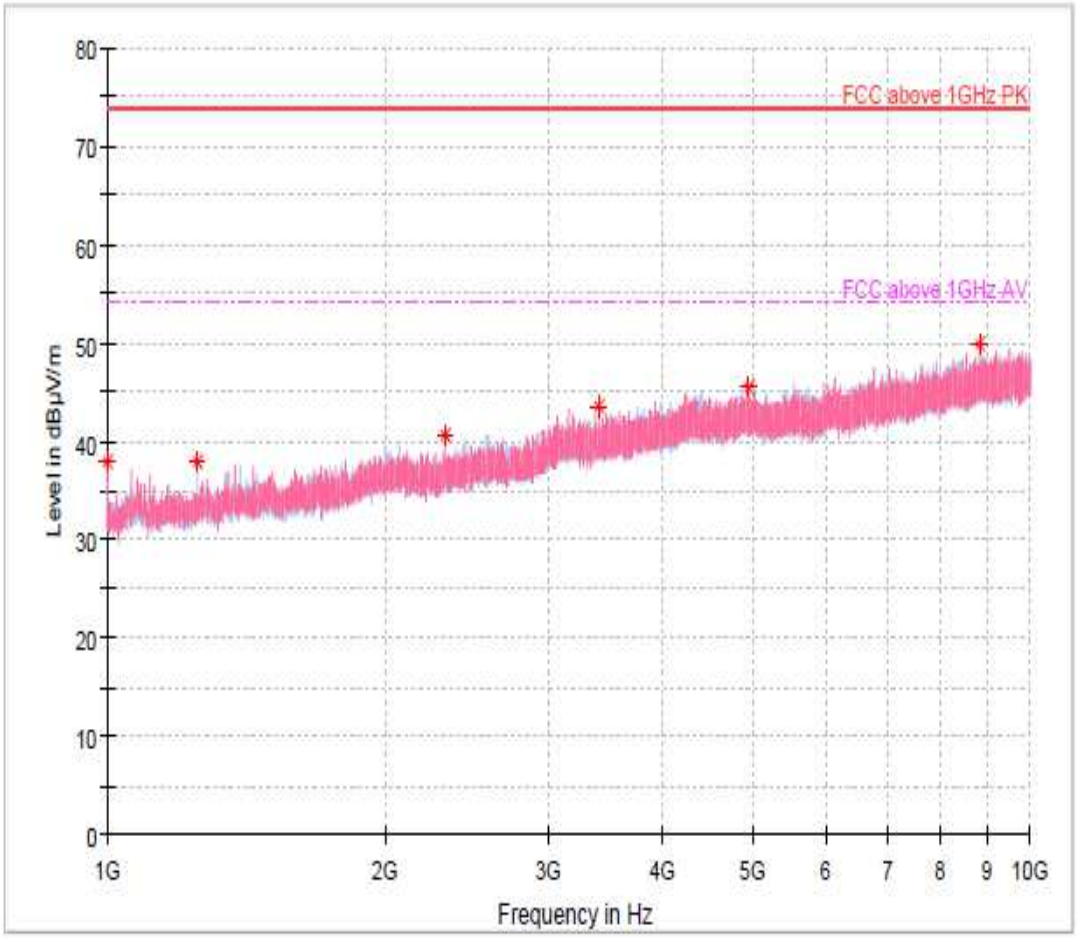
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
40.880556	31.19	40.00	8.81	400.0	V	275.0	-10.6
63.440556	27.10	40.00	12.90	100.0	H	0.0	-12.5
105.121111	28.06	43.50	15.44	200.0	V	77.0	-11.9
202.439444	29.92	43.50	13.58	400.0	H	105.0	-12.4
417.453889	36.32	46.00	9.68	300.0	H	233.0	-6.0
600.378889	39.73	46.00	6.27	200.0	V	48.0	-2.4
881.498333	59.68	46.00	-13.68	100.0	H	293.0	0.2

Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
40.880556	20.48	40.00	19.52	400.0	V	275.0	-10.5
63.440556	18.66	40.00	21.34	100.0	H	0.0	-12.4
105.121111	19.16	43.50	24.34	200.0	V	77.0	-11.9
202.439444	18.60	43.50	24.90	400.0	H	105.0	-12.4
417.453889	24.92	46.00	21.08	300.0	H	233.0	-6.1
600.378889	28.62	46.00	17.38	200.0	V	48.0	-2.4

Note1) Unwanted emissions captured from 824MHz to 849MHz and from 869MHz to 894MHz were the TX and RX signals generated from the call-simulator.

Above 1 GHz (Mode1: GSM 850 Mid CHNNEL 881.5 MHz)

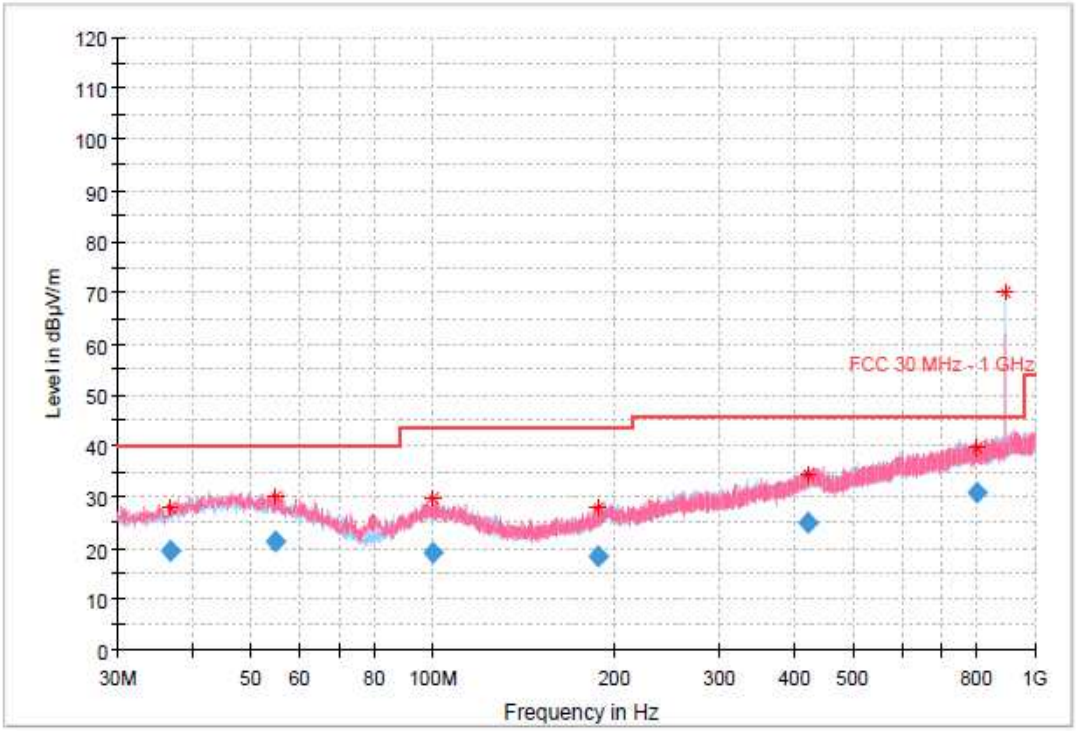


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1000.264706	37.88	---	74.00	36.12	200.0	V	347.0	-11.3
1250.147059	37.95	---	74.00	36.05	200.0	H	322.0	-10.6
2318.500000	40.64	---	74.00	33.36	100.0	V	49.0	-6.3
3408.558824	43.51	---	74.00	30.49	100.0	V	241.0	-2.3
4949.147059	45.53	---	74.00	28.47	200.0	V	22.0	1.0
8824.176471	49.83	---	74.00	24.17	100.0	V	357.0	5.4

Note1) Emission was scanned 1 GHz to 10 GHz; No emissions were detected above the noise floor which was at least 20 dB below the specification limit.

Below 1 GHz (Mode1: GSM 850 High CHNNEL 893.8 MHz)



Critical Freqs

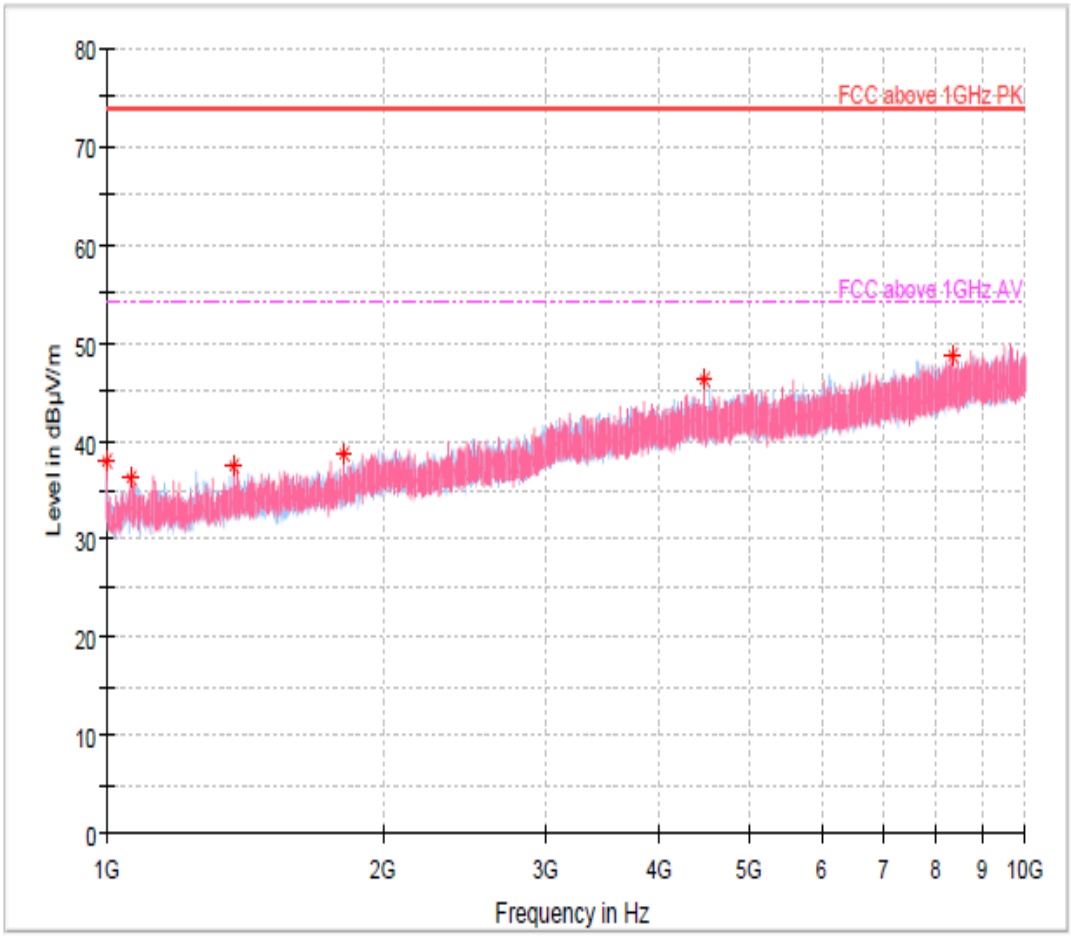
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
36.586667	27.89	40.00	12.11	100.0	V	85.0	-11.9
54.929444	30.21	40.00	9.79	200.0	V	189.0	-10.6
99.965000	29.61	43.50	13.89	300.0	H	240.0	-11.8
188.697778	27.92	43.50	15.58	400.0	V	258.0	-13.2
421.419444	34.43	46.00	11.57	300.0	V	350.0	-6.0
799.105556	39.66	46.00	6.34	300.0	H	209.0	-0.4
893.785000	70.19	46.00	-24.19	200.0	H	0.0	0.5

Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
36.586667	19.53	40.00	20.47	100.0	V	85.0	-11.9
54.929444	21.29	40.00	18.71	200.0	V	189.0	-10.6
99.965000	19.24	43.50	24.26	300.0	H	240.0	-11.8
188.697778	18.19	43.50	25.31	400.0	V	258.0	-13.1
421.419444	24.85	46.00	21.15	300.0	V	350.0	-5.9
799.105556	30.87	46.00	15.13	300.0	H	209.0	-0.5

Note1) Unwanted emissions captured from 824MHz to 849MHz and from 869MHz to 894MHz were the TX and RX signals generated from the call-simulator.

Above 1 GHz (Mode1: GSM 850 High CHNNEL 893.8 MHz)

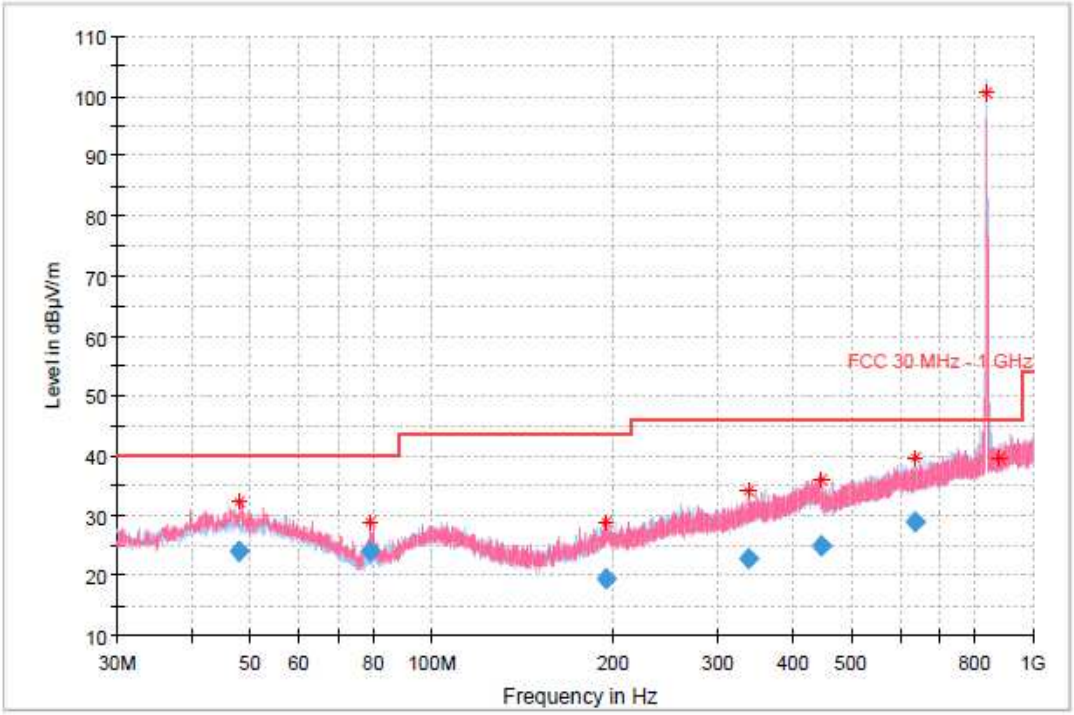


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1000.264706	37.90	---	74.00	36.10	200.0	V	310.0	-11.3
1062.735294	36.29	---	74.00	37.71	200.0	V	148.0	-11.0
1375.617647	37.40	---	74.00	36.60	200.0	H	263.0	-9.6
1812.647059	38.65	---	74.00	35.35	200.0	V	152.0	-7.9
4475.323530	46.28	---	74.00	27.72	200.0	V	131.0	0.1
8325.205882	48.69	---	74.00	25.31	100.0	V	0.0	4.7

Note1) Emission was scanned 1 GHz to 10 GHz; No emissions were detected above the noise floor which was at least 20 dB below the specification limit.

Below 1 GHz (Mode2: WCDMA Band 5 Mid CHNNEL 881.6 MHz)



Critical_Freqs

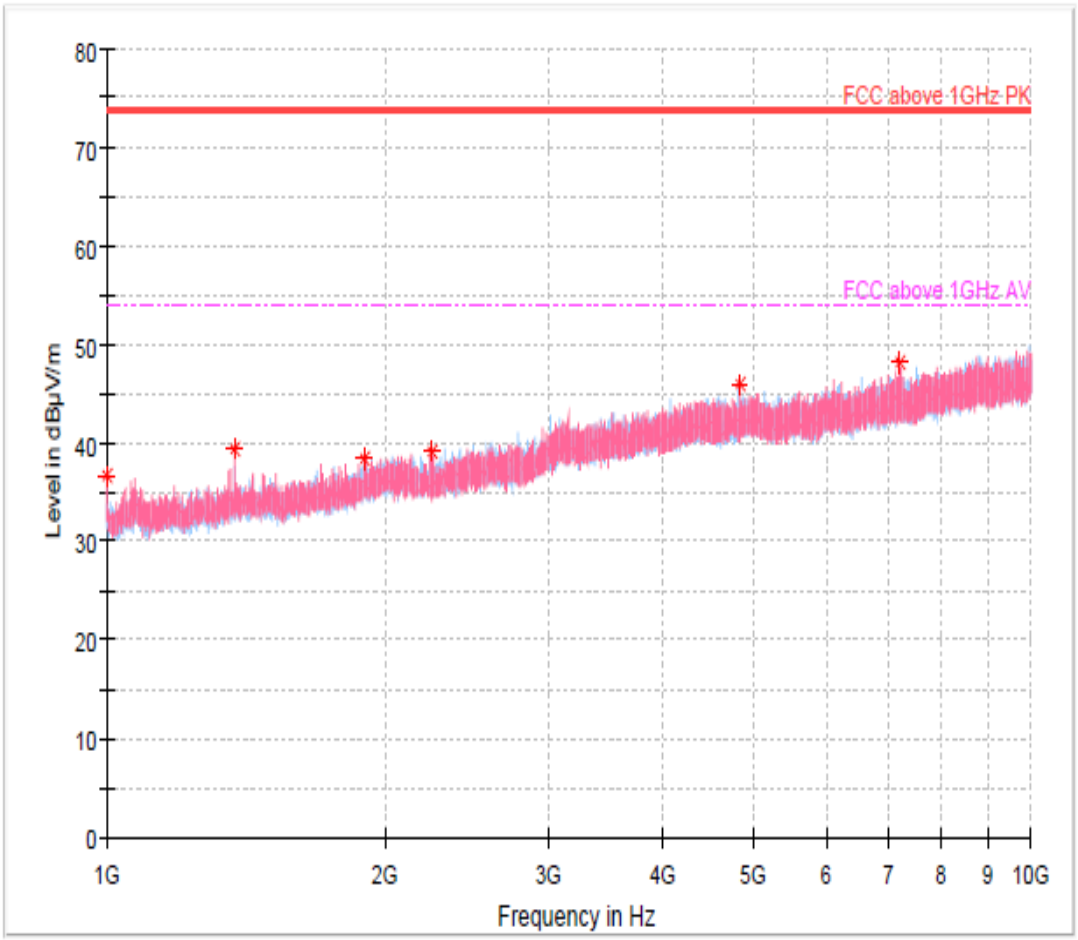
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
47.882222	32.27	40.00	7.73	100.0	V	257.0	-9.9
78.972778	29.00	40.00	11.00	100.0	V	196.0	-17.1
194.390556	29.02	43.50	14.48	400.0	H	288.0	-11.9
336.961667	34.07	46.00	11.93	100.0	V	182.0	-8.0
443.312222	36.04	46.00	9.96	200.0	V	141.0	-5.8
634.718333	39.71	46.00	6.29	200.0	H	112.0	-2.2
836.501111	100.49	46.00	-54.49	100.0	H	358.0	-0.2
881.606111	39.59	46.00	6.41	300.0	H	246.0	0.2

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
47.882222	24.04	40.00	15.96	100.0	V	257.0	-9.8
78.972778	24.18	40.00	15.82	100.0	V	196.0	-17.1
194.390556	19.38	43.50	24.12	400.0	H	288.0	-11.9
336.961667	22.81	46.00	23.19	100.0	V	182.0	-8.0
443.312222	25.11	46.00	20.89	200.0	V	141.0	-5.8
634.718333	28.81	46.00	17.19	200.0	H	112.0	-2.2

Note1) Unwanted emissions captured from 824MHz to 849MHz and from 869MHz to 894MHz were the TX and RX signals generated from the call-simulator.

Above 1 GHz (Mode2: WCDMA Band 5 Mid CHNNEL 881.6 MHz)

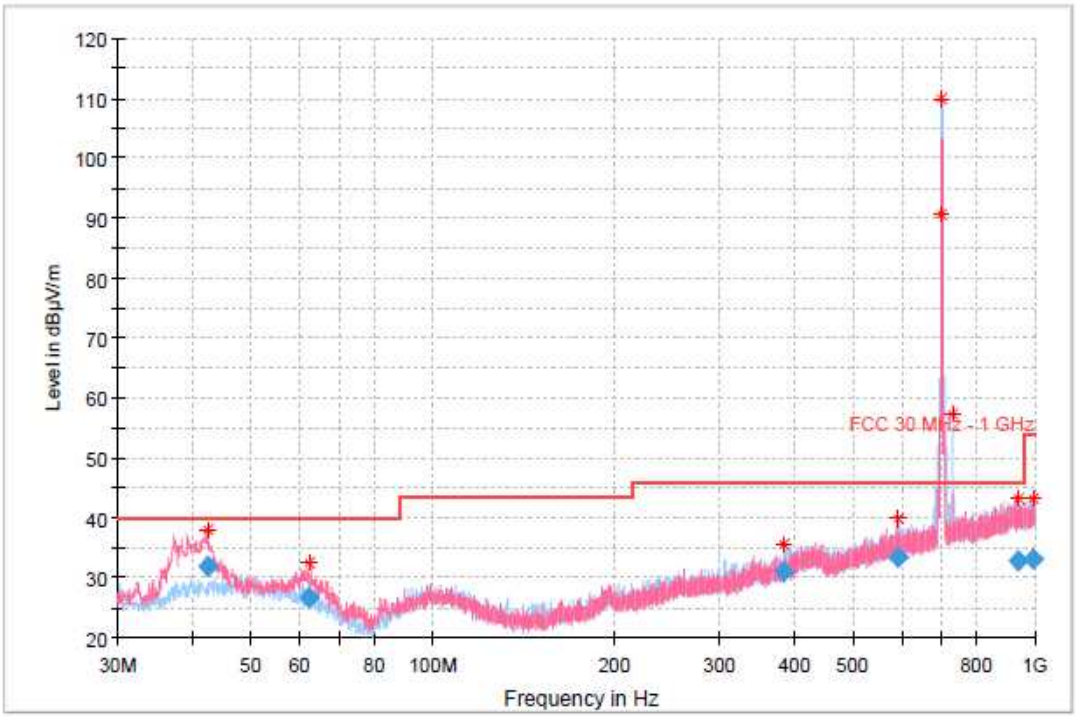


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1000.264706	36.59	---	74.00	37.41	200.0	V	2.0	-11.3
1375.088235	39.44	---	74.00	34.56	200.0	V	357.0	-9.6
1897.352941	38.33	---	74.00	35.67	100.0	H	72.0	-7.2
2250.735294	39.16	---	74.00	34.84	100.0	H	180.0	-6.7
4836.647059	45.88	---	74.00	28.12	200.0	V	0.0	0.7
7206.029412	48.26	---	74.00	25.74	200.0	V	0.0	3.5

Note1) Emission was scanned 1 GHz to 10 GHz; No emissions were detected above the noise floor which was at least 20 dB below the specification limit.

Below 1 GHz (Mode3: LTE Band 12 Low CHNNEL 730.5 MHz)



Critical Freqs

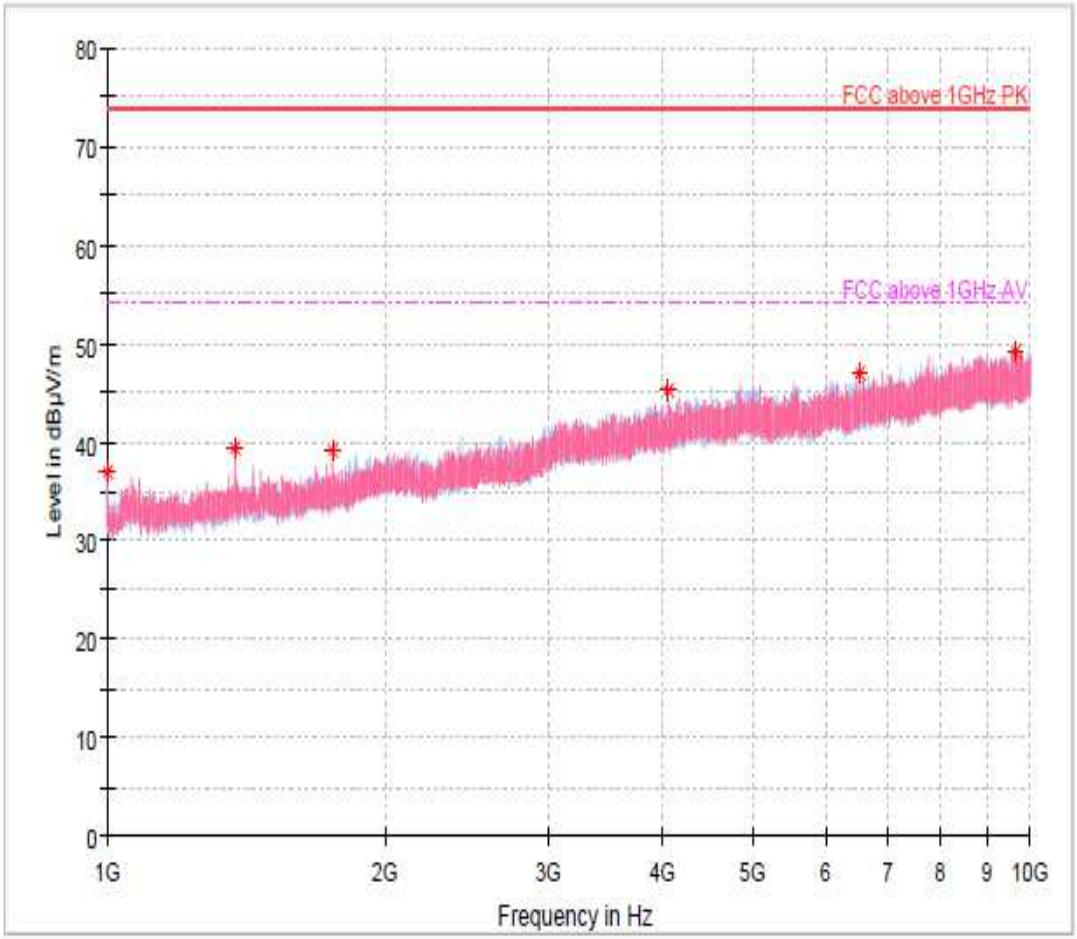
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
42.191111	38.07	40.00	1.93	100.0	V	0.0	-10.4
62.390556	32.46	40.00	7.54	100.0	V	250.0	-12.2
382.635000	35.51	46.00	10.49	100.0	H	140.0	-7.1
592.483333	39.96	46.00	6.04	100.0	H	140.0	-2.6
699.030556	90.73	46.00	-44.73	100.0	H	0.0	-1.8
700.431667	109.93	46.00	-63.93	100.0	H	137.0	-1.8
730.501667	57.32	46.00	-11.32	300.0	H	87.0	-1.0
939.456667	43.22	46.00	2.78	300.0	H	297.0	0.8
992.184444	43.35	54.00	10.65	100.0	V	214.0	0.9

Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
42.191111	32.07	40.00	7.93	100.0	V	0.0	-10.4
62.390556	26.79	40.00	13.21	100.0	V	250.0	-12.2
382.635000	31.14	46.00	14.86	100.0	H	140.0	-7.1
592.483333	33.60	46.00	12.40	100.0	H	140.0	-2.6
939.456667	32.91	46.00	13.09	300.0	H	297.0	0.8

Note1) Unwanted emissions captured from 699MHz to 716MHz and from 729MHz to 746MHz were the TX and RX signals generated from the call-simulator.

Above 1 GHz (Mode3: LTE Band 12 Low CHNNEL 730.5 MHz)

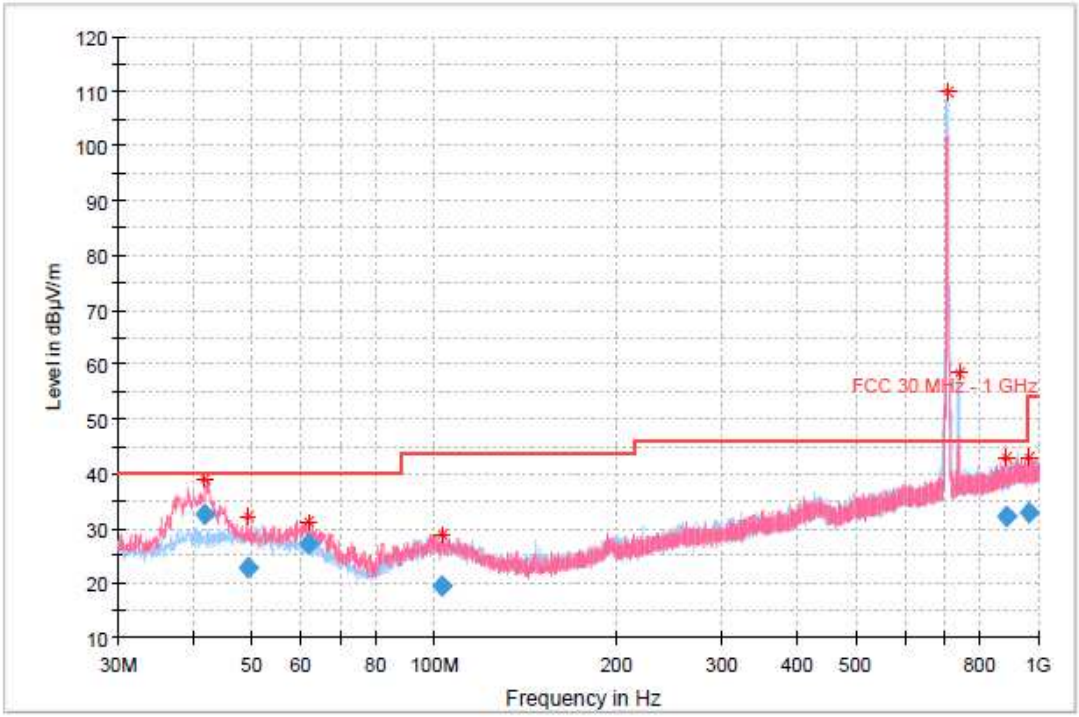


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1000.264706	37.06	---	74.00	36.94	200.0	V	1.0	-11.3
1375.088235	39.34	---	74.00	34.66	200.0	V	336.0	-9.6
1750.176471	39.03	---	74.00	34.97	200.0	V	50.0	-8.2
4057.617647	45.34	---	74.00	28.66	200.0	H	44.0	-0.9
6544.794118	47.06	---	74.00	26.94	100.0	V	95.0	2.6
9643.176471	49.21	---	74.00	24.79	100.0	V	178.0	6.3

Note1) Emission was scanned 1 GHz to 10 GHz; No emissions were detected above the noise floor which was at least 20 dB below the specification limit.

Below 1 GHz (Mode3: LTE Band 12 Mid CHNNEL 737.5 MHz)



Critical_Freqs

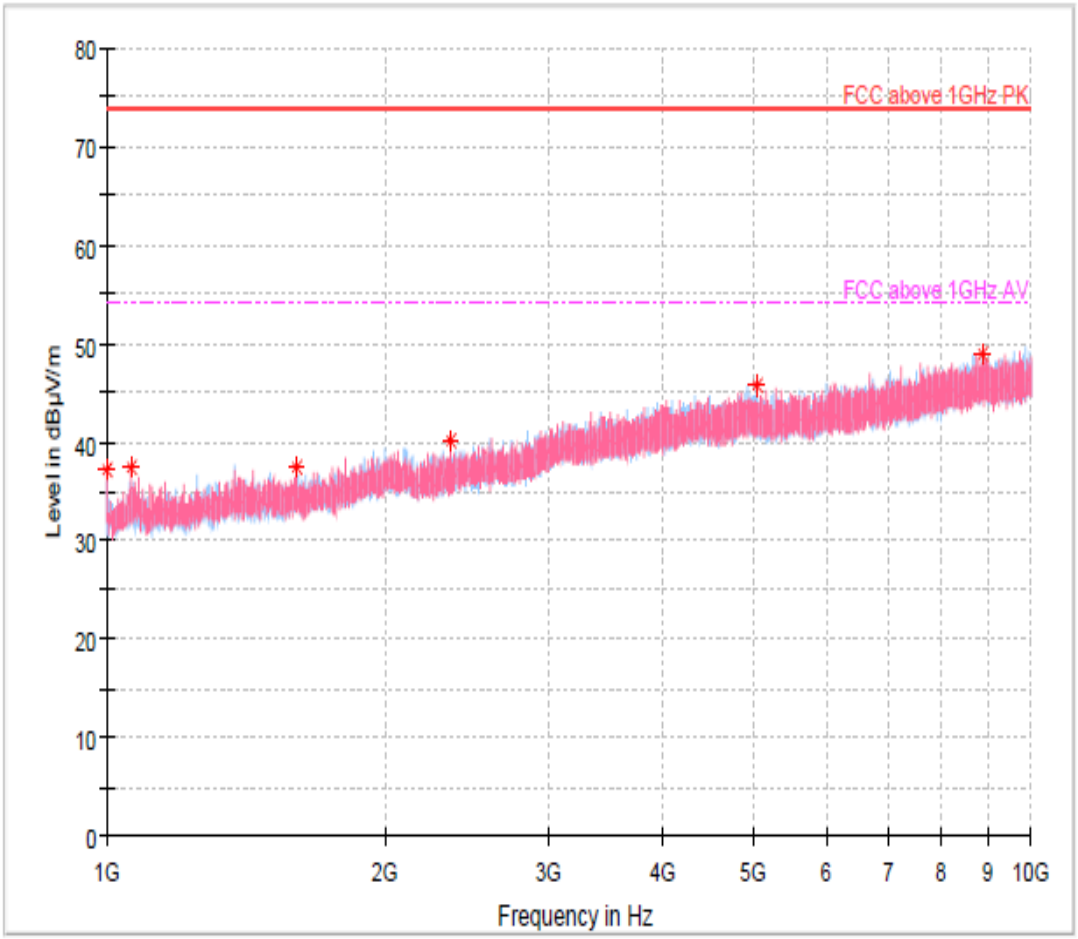
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
41.818889	38.81	40.00	1.19	100.0	V	0.0	-10.4
49.182778	32.16	40.00	7.84	100.0	V	313.0	-9.9
61.723333	31.31	40.00	8.69	100.0	V	283.0	-11.9
102.848889	28.74	43.50	14.76	100.0	V	222.0	-11.8
707.167778	109.91	46.00	-63.91	100.0	H	161.0	-1.8
737.615000	58.52	46.00	-12.52	300.0	H	325.0	-0.8
885.666667	43.06	46.00	2.94	300.0	V	322.0	0.3
962.865556	42.96	54.00	11.04	300.0	V	81.0	0.7

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
41.818889	32.54	40.00	7.46	100.0	V	0.0	-10.5
49.182778	22.74	40.00	17.26	100.0	V	313.0	-9.9
61.723333	27.05	40.00	12.95	100.0	V	283.0	-12.0
102.848889	19.37	43.50	24.13	100.0	V	222.0	-11.8
885.666667	32.16	46.00	13.84	300.0	V	322.0	0.3
962.865556	32.88	54.00	21.12	300.0	V	81.0	0.7

Note1) Unwanted emissions captured from 699MHz to 716MHz and from 729MHz to 746MHz were the TX and RX signals generated from the call-simulator.

Above 1 GHz (Mode3: LTE Band 12 Mid CHNNEL 737.5 MHz)

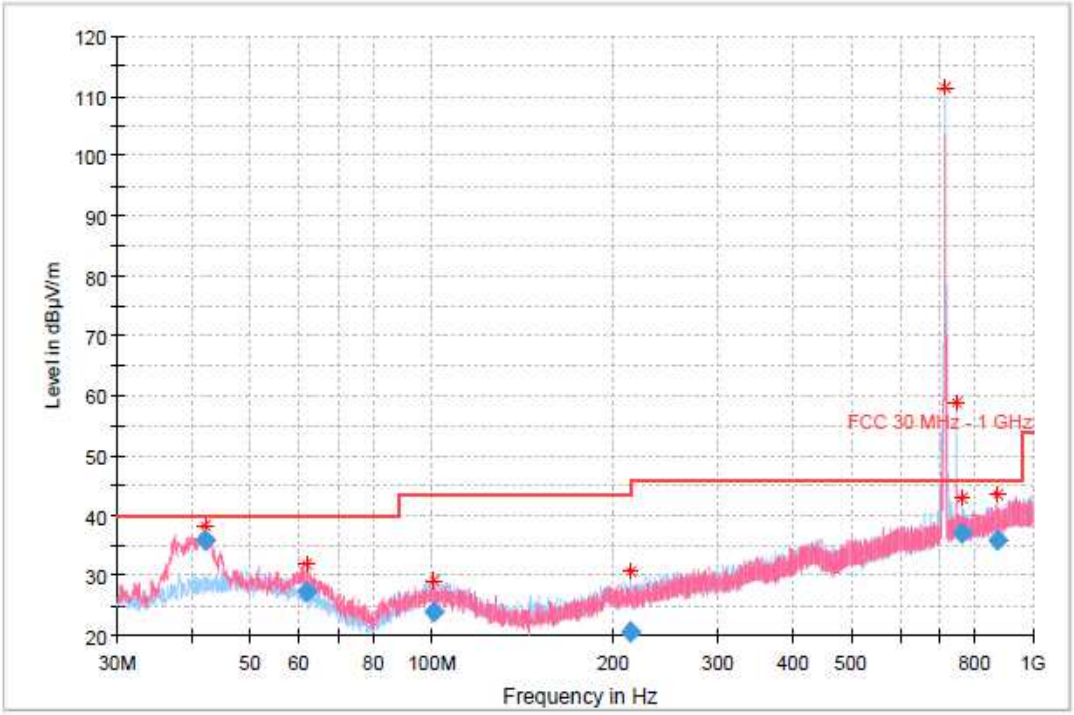


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1000.000000	37.31	---	74.00	36.69	200.0	V	84.0	-11.3
1062.735294	37.32	---	74.00	36.68	200.0	V	207.0	-11.0
1601.676471	37.43	---	74.00	36.57	100.0	V	163.0	-8.4
2350.264706	40.03	---	74.00	33.97	200.0	V	61.0	-6.0
5049.205882	45.85	---	74.00	28.15	200.0	H	159.0	1.0
8868.911765	48.97	---	74.00	25.03	100.0	H	178.0	5.5

Note1) Emission was scanned 1 GHz to 10 GHz; No emissions were detected above the noise floor which was at least 20 dB below the specification limit.

Below 1 GHz (Mode3: LTE Band 12 High CHNNEL 744.5 MHz)



Critical_Freqs

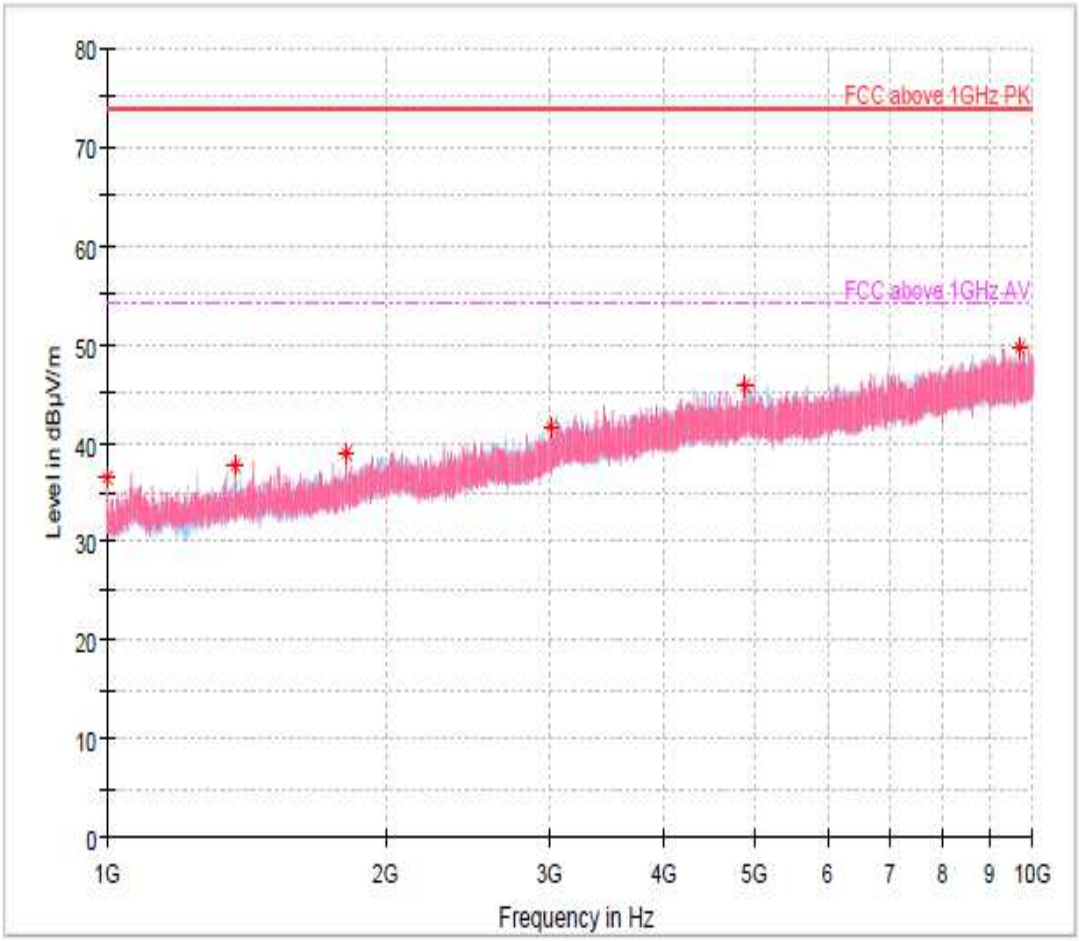
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
42.161667	38.45	40.00	1.56	100.0	V	348.0	-10.5
61.839444	31.87	40.00	8.13	100.0	V	63.0	-12.2
101.046667	29.28	43.50	14.22	100.0	H	149.0	-11.8
214.404444	30.75	43.50	12.75	100.0	H	104.0	-12.4
714.981667	111.33	46.00	-65.33	100.0	H	164.0	-1.8
744.620556	58.75	46.00	-12.75	300.0	H	1.0	-0.6
762.706111	42.87	46.00	3.13	100.0	H	161.0	-0.5
870.821111	43.57	46.00	2.43	100.0	H	161.0	0.1

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
42.161667	35.82	40.00	4.18	100.0	V	348.0	-10.4
61.839444	27.46	40.00	12.54	100.0	V	63.0	-12.1
101.046667	23.86	43.50	19.64	100.0	H	149.0	-11.8
214.404444	20.46	43.50	23.04	100.0	H	104.0	-12.4
762.706111	37.26	46.00	8.74	100.0	H	161.0	-0.5
870.821111	36.00	46.00	10.00	100.0	H	161.0	0.1

Note1) Unwanted emissions captured from 699MHz to 716MHz and from 729MHz to 746MHz were the TX and RX signals generated from the call-simulator.

Above 1 GHz (Mode3: LTE Band 12 High CHNNEL 744.5 MHz)

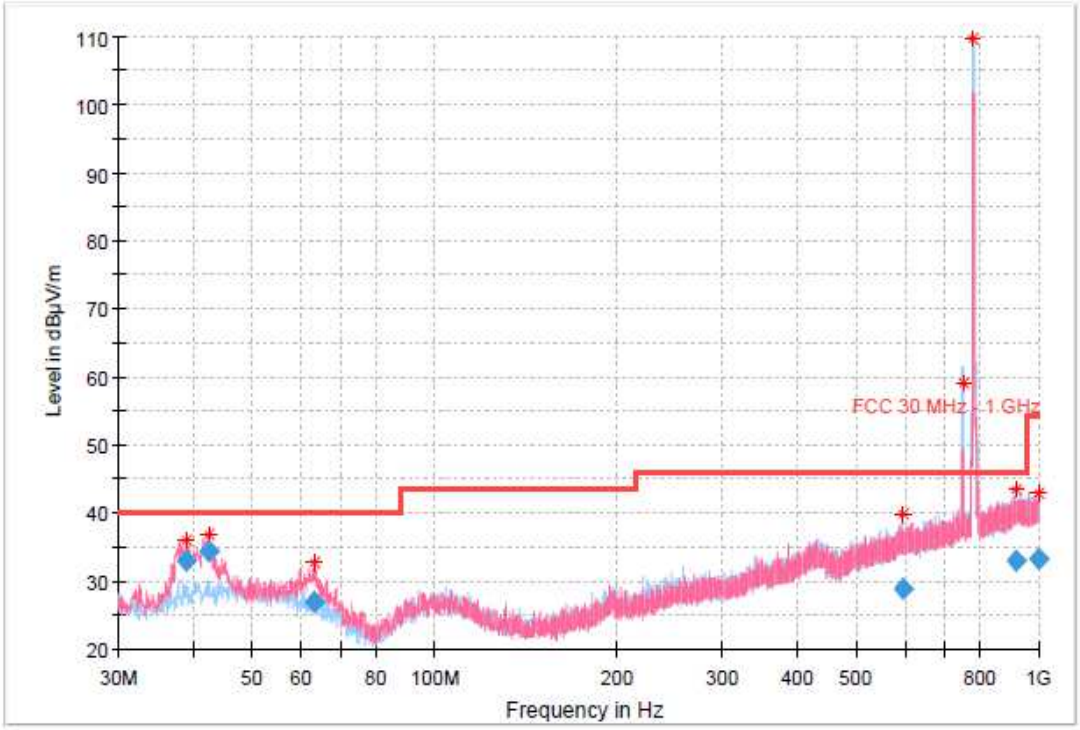


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1000.264706	36.46	---	74.00	37.54	200.0	V	277.0	-11.3
1375.088235	37.79	---	74.00	36.21	200.0	V	14.0	-9.6
1812.382353	38.80	---	74.00	35.20	200.0	H	166.0	-7.9
3022.882353	41.50	---	74.00	32.50	100.0	H	65.0	-3.6
4880.588235	45.83	---	74.00	28.17	100.0	H	113.0	0.8
9677.588235	49.70	---	74.00	24.30	100.0	V	203.0	6.2

Note1) Emission was scanned 1 GHz to 10 GHz; No emissions were detected above the noise floor which was at least 20 dB below the specification limit.

Below 1 GHz (Mode4: LTE Band 13 Low CHNNEL 748.5 MHz)



Critical Freqs

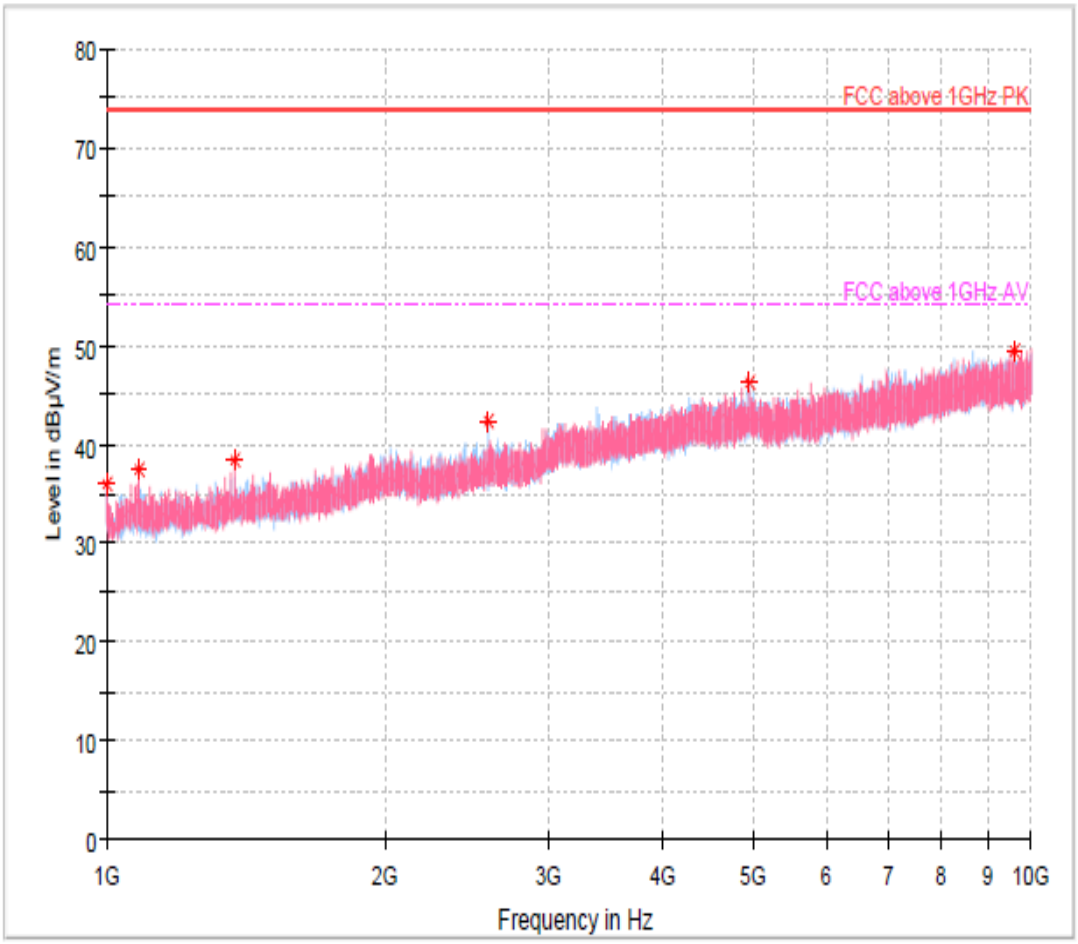
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
38.863889	35.93	40.00	4.07	100.0	V	26.0	-11.1
42.352778	36.68	40.00	3.32	100.0	V	324.0	-10.4
63.447778	32.70	40.00	7.30	100.0	V	280.0	-12.3
596.375556	39.95	46.00	6.05	100.0	H	98.0	-2.5
748.554444	58.97	46.00	-12.97	100.0	H	93.0	-0.6
780.079444	109.59	46.00	-63.59	200.0	H	154.0	-0.5
918.391111	43.31	46.00	2.69	200.0	H	352.0	1.0
998.558889	42.95	54.00	11.05	100.0	H	322.0	0.9

Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
38.863889	32.93	40.00	7.07	100.0	V	26.0	-11.1
42.352778	34.20	40.00	5.80	100.0	V	324.0	-10.3
63.447778	26.84	40.00	13.16	100.0	V	280.0	-12.4
596.375556	28.67	46.00	17.33	100.0	H	98.0	-2.5
918.391111	32.98	46.00	13.02	200.0	H	352.0	1.0

Note1) Unwanted emissions captured from 777MHz to 787MHz and from 746MHz to 756MHz were the TX and RX signals generated from the call-simulator.

Above 1 GHz (Mode4: LTE Band 13 Low CHNNEL 748.5 MHz)

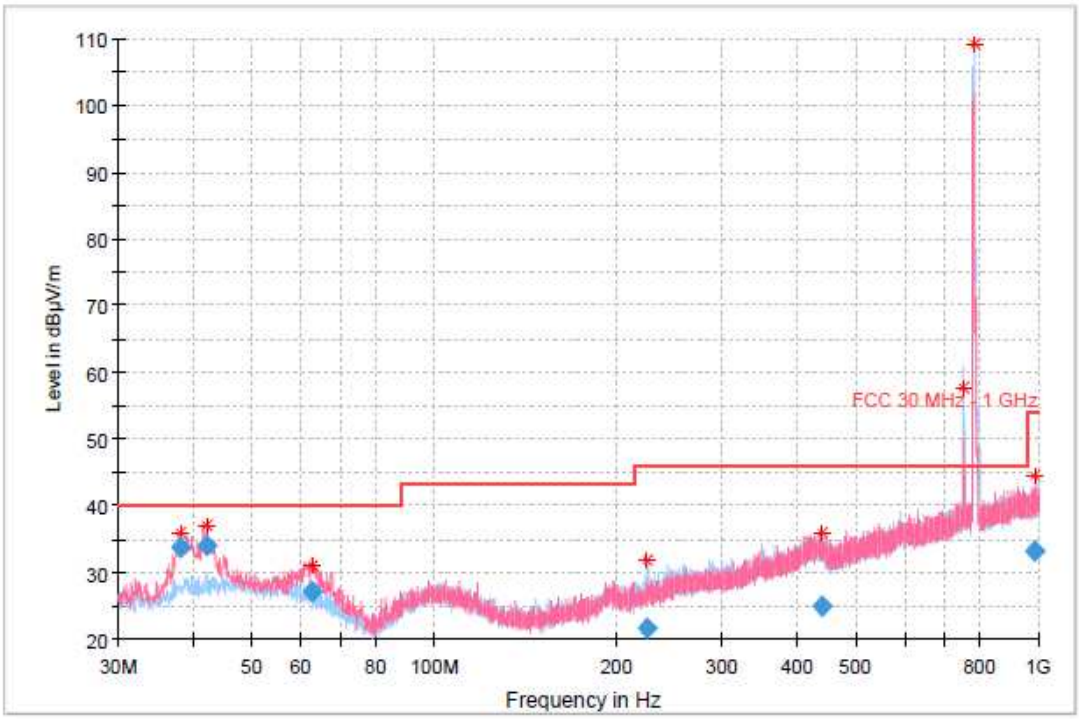


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1000.529412	35.95	---	74.00	38.05	200.0	V	161.0	-11.3
1082.323530	37.46	---	74.00	36.54	200.0	V	59.0	-11.0
1375.352941	38.39	---	74.00	35.61	200.0	V	203.0	-9.6
2586.911765	42.21	---	74.00	31.79	200.0	H	0.0	-5.0
4959.470588	46.22	---	74.00	27.78	100.0	H	86.0	1.0
9575.147059	49.49	---	74.00	24.51	100.0	V	359.0	6.2

Note1) Emission was scanned 1 GHz to 10 GHz; No emissions were detected above the noise floor which was at least 20 dB below the specification limit.

Below 1 GHz (Mode4: LTE Band 13 Mid CHNNEL 751 MHz)



Critical_Freqs

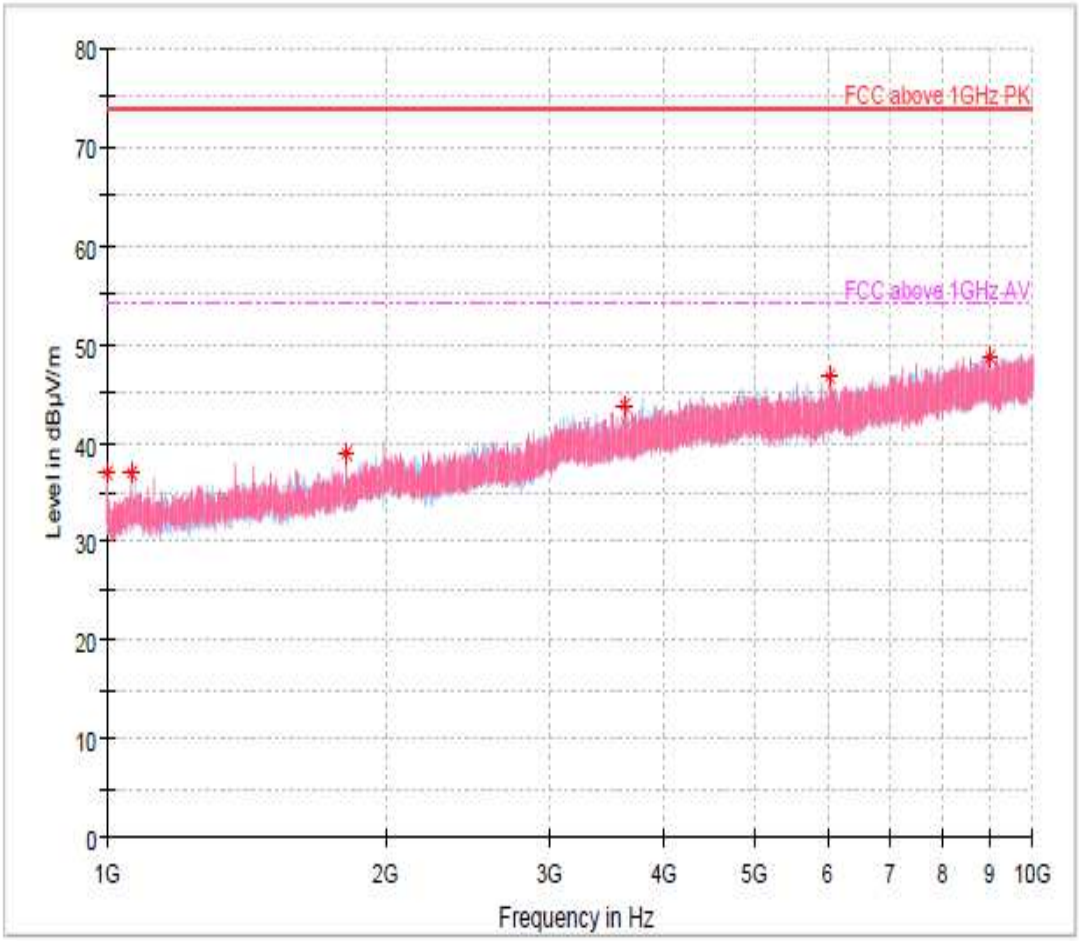
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
37.933889	36.10	40.00	3.90	100.0	V	306.0	-11.4
42.026111	36.99	40.00	3.01	100.0	V	295.0	-10.5
62.870556	31.13	40.00	8.87	100.0	V	101.0	-12.2
225.286111	31.95	46.00	14.05	200.0	H	77.0	-11.7
437.792778	35.96	46.00	10.04	300.0	V	54.0	-5.8
751.033333	57.80	46.00	-11.80	100.0	H	279.0	-0.5
782.612222	109.04	46.00	-63.04	200.0	H	137.0	-0.6
989.098889	44.55	54.00	9.45	200.0	H	32.0	0.9

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
37.933889	33.89	40.00	6.11	100.0	V	306.0	-11.3
42.026111	33.90	40.00	6.10	100.0	V	295.0	-10.4
62.870556	27.26	40.00	12.74	100.0	V	101.0	-12.3
225.286111	21.72	46.00	24.28	200.0	H	77.0	-11.7
437.792778	24.96	46.00	21.04	300.0	V	54.0	-5.8
989.098889	33.23	54.00	20.77	200.0	H	32.0	0.9

Note1) Unwanted emissions captured from 777MHz to 787MHz and from 746MHz to 756MHz were the TX and RX signals generated from the call-simulator.

Above 1 GHz (Mode4: LTE Band 13 Mid CHNNEL 751 MHz)

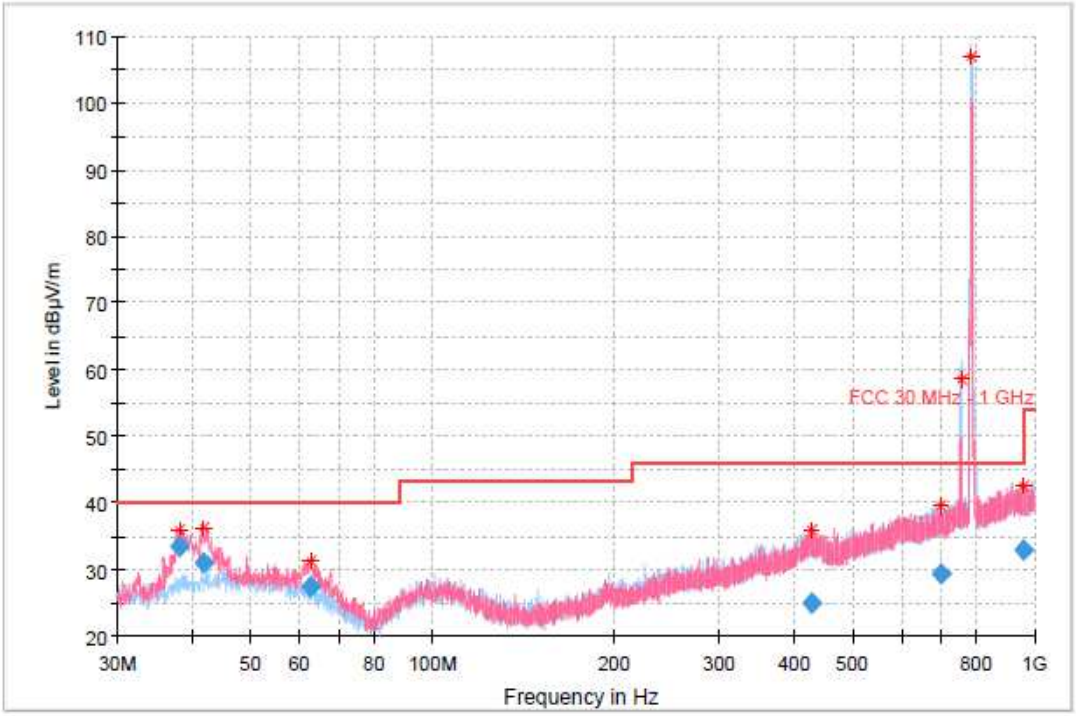


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1000.264706	36.82	---	74.00	37.18	200.0	H	346.0	-11.3
1062.470588	37.04	---	74.00	36.96	200.0	V	0.0	-11.0
1812.382353	38.94	---	74.00	35.06	200.0	V	115.0	-7.9
3628.529412	43.90	---	74.00	30.10	200.0	V	213.0	-1.9
6020.411765	46.72	---	74.00	27.28	200.0	V	130.0	1.8
8987.500000	48.58	---	74.00	25.42	100.0	V	54.0	5.4

Note1) Emission was scanned 1 GHz to 10 GHz; No emissions were detected above the noise floor which was at least 20 dB below the specification limit.

Below 1 GHz (Mode4: LTE Band 13 High CHNNEL 753.5 MHz)



Critical_Freqs

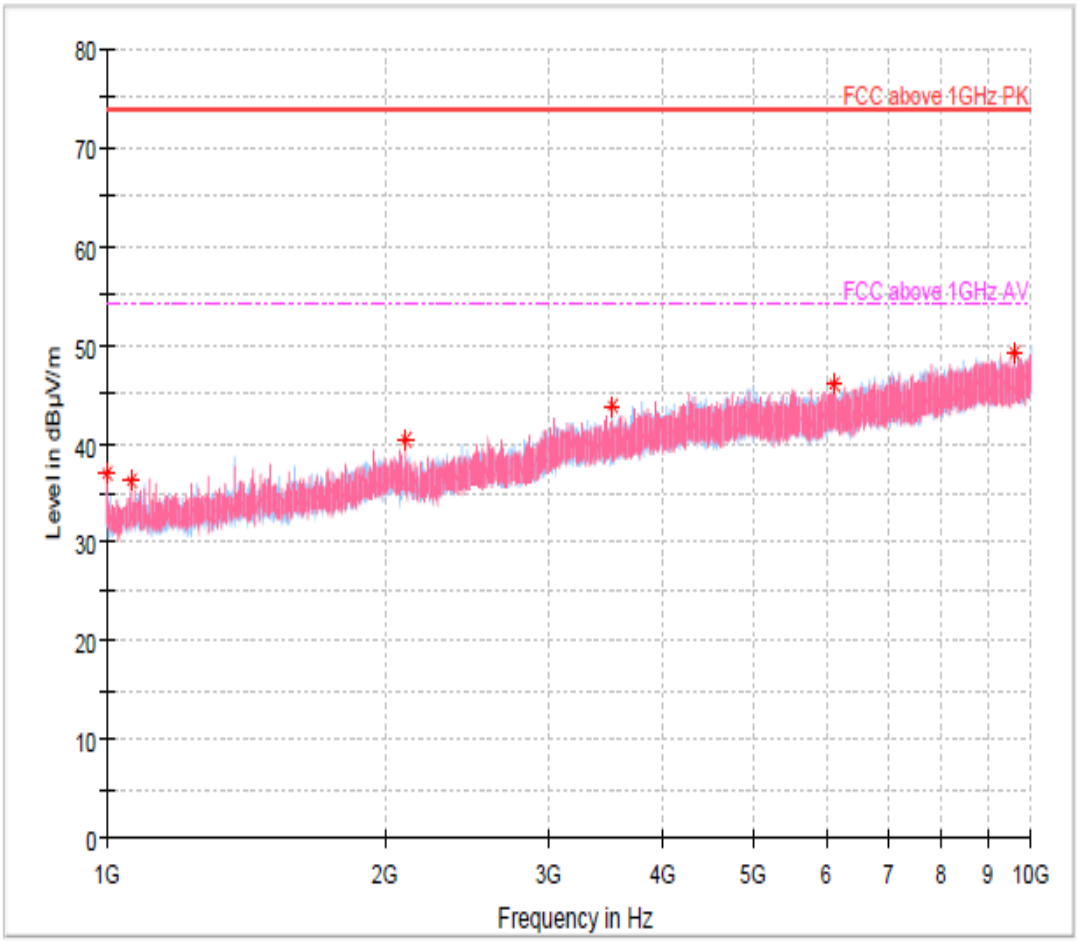
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
38.120000	35.94	40.00	4.06	100.0	V	338.0	-11.4
41.860556	36.34	40.00	3.66	100.0	V	0.0	-10.3
62.750556	31.16	40.00	8.84	100.0	V	282.0	-12.2
424.800556	36.02	46.00	9.98	200.0	V	0.0	-5.9
697.506111	39.51	46.00	6.49	100.0	V	178.0	-1.8
753.620000	58.47	46.00	-12.47	200.0	H	83.0	-0.5
785.037222	106.96	46.00	-60.96	200.0	H	150.0	-0.6
960.492222	42.61	54.00	11.39	100.0	V	180.0	0.7

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
38.120000	33.44	40.00	6.56	100.0	V	338.0	-11.3
41.860556	31.14	40.00	8.86	100.0	V	0.0	-10.5
62.750556	27.38	40.00	12.62	100.0	V	282.0	-12.3
424.800556	24.99	46.00	21.01	200.0	V	0.0	-5.9
697.506111	29.41	46.00	16.59	100.0	V	178.0	-1.8
960.492222	32.86	54.00	21.14	100.0	V	180.0	0.7

Note1) Unwanted emissions captured from 777MHz to 787MHz and from 746MHz to 756MHz were the TX and RX signals generated from the call-simulator.

Above 1 GHz (Mode4: LTE Band 13 LOW CHNNEL 753.5 MHz)

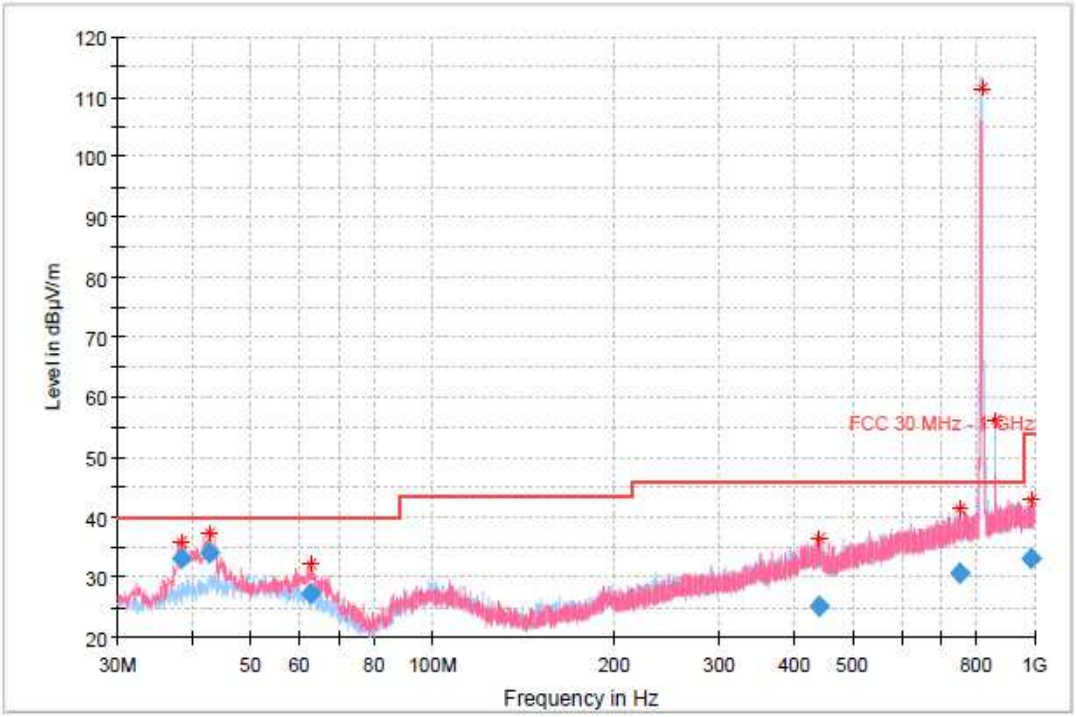


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1000.264706	36.88	---	74.00	37.12	200.0	V	315.0	-11.3
1062.470588	36.10	---	74.00	37.90	200.0	V	60.0	-11.0
2108.323530	40.26	---	74.00	33.74	200.0	V	75.0	-6.5
3522.911765	43.68	---	74.00	30.32	200.0	H	187.0	-2.1
6107.500000	45.93	---	74.00	28.07	200.0	V	326.0	2.1
9575.941177	49.20	---	74.00	24.80	100.0	V	79.0	6.2

Note1) Emission was scanned 1 GHz to 10 GHz; No emissions were detected above the noise floor which was at least 20 dB below the specification limit.

Below 1 GHz (Mode5: LTE Band 26 Low CHNNEL 860.5 MHz)



Critical_Freqs

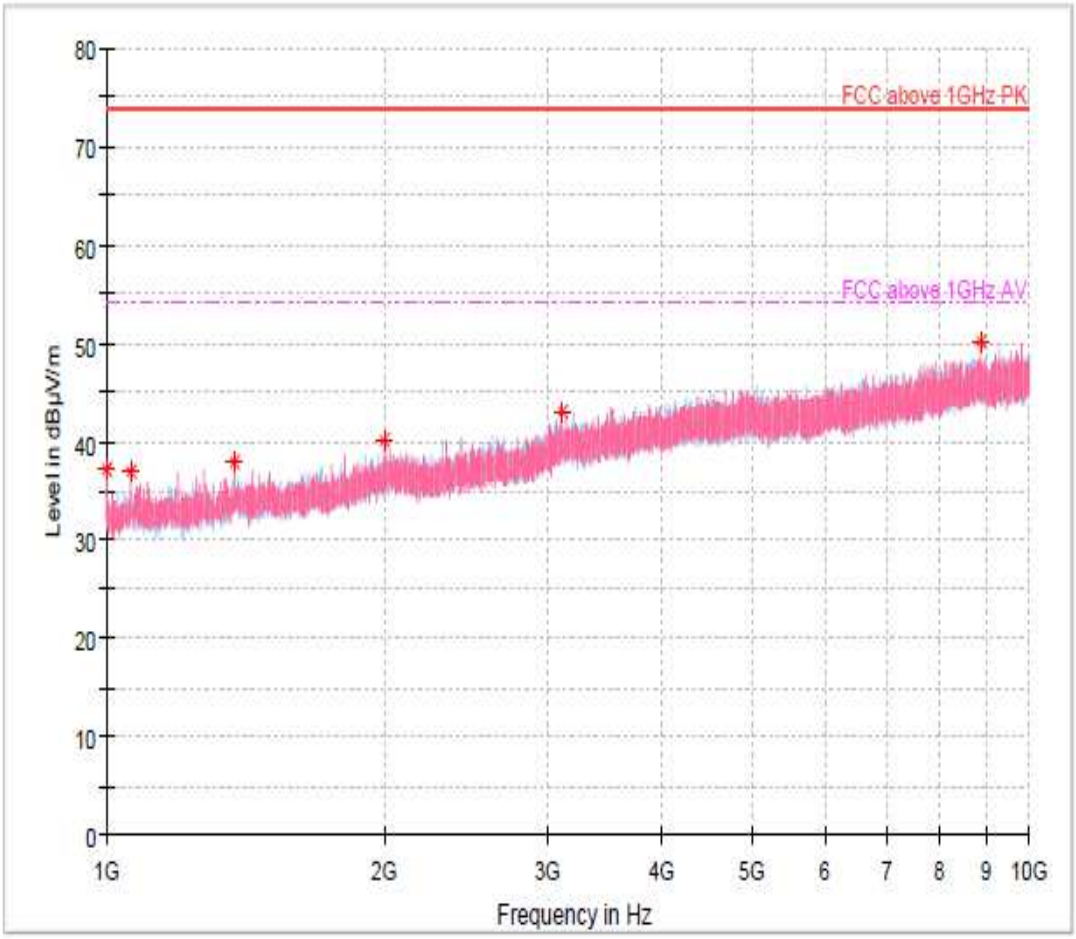
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
38.213889	35.78	40.00	4.22	100.0	V	17.0	-11.4
42.557778	37.35	40.00	2.65	100.0	V	0.0	-10.2
62.921111	32.29	40.00	7.71	100.0	V	228.0	-12.2
437.925000	36.49	46.00	9.51	100.0	V	238.0	-5.8
750.126111	41.39	46.00	4.61	200.0	V	56.0	-0.6
815.484444	111.46	46.00	-65.46	200.0	H	212.0	-0.5
860.427778	55.94	46.00	-9.94	100.0	H	54.0	0.1
983.979444	42.85	54.00	11.15	200.0	H	2.0	0.8

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
38.213889	33.09	40.00	6.91	100.0	V	17.0	-11.3
42.557778	34.02	40.00	5.98	100.0	V	0.0	-10.3
62.921111	27.34	40.00	12.66	100.0	V	228.0	-12.3
437.925000	25.13	46.00	20.87	100.0	V	238.0	-5.8
750.126111	30.70	46.00	15.30	200.0	V	56.0	-0.6
983.979444	33.03	54.00	20.97	200.0	H	2.0	0.8

Note1) Unwanted emissions captured from 814MHz to 849MHz and from 859MHz to 894MHz were the TX and RX signals generated from the call-simulator.

Above 1 GHz (Mode5: LTE Band 26 LOW CHNNEL 860.5 MHz)



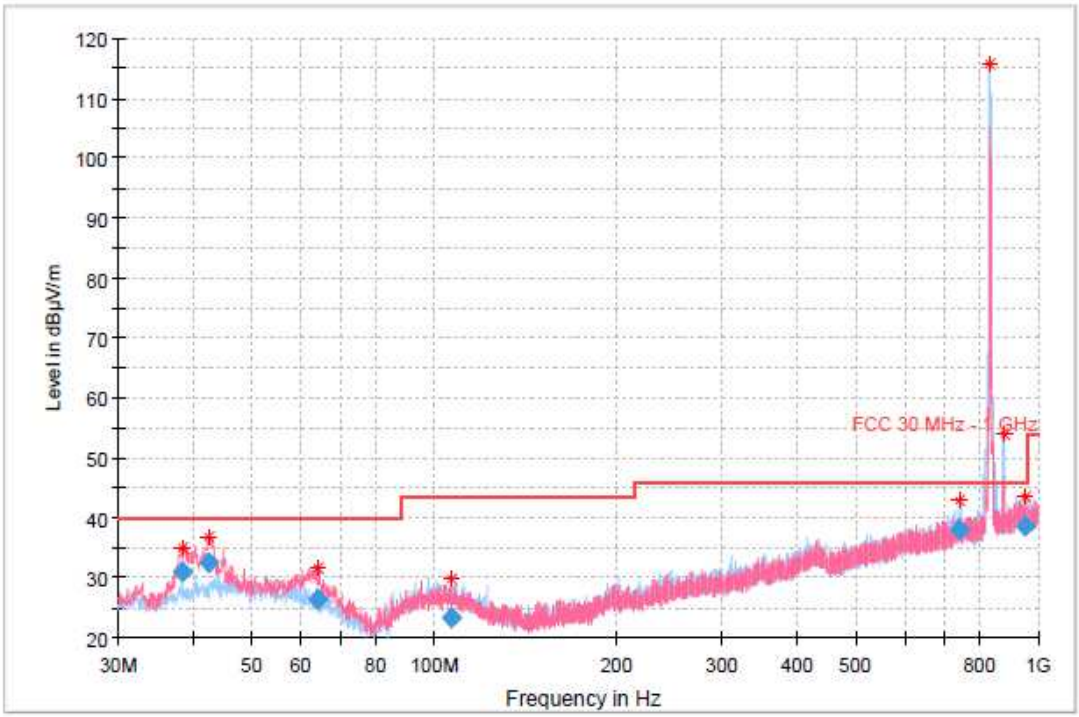
Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1000.529412	37.21	---	74.00	36.79	200.0	V	120.0	-11.3
1063.000000	36.87	---	74.00	37.13	200.0	V	336.0	-11.0
1375.088235	37.91	---	74.00	36.09	200.0	V	322.0	-9.6
1999.794118	40.04	---	74.00	33.96	200.0	V	205.0	-6.6
3113.147059	42.95	---	74.00	31.05	100.0	V	0.0	-2.9
8837.147059	50.21	---	74.00	23.79	100.0	V	218.0	5.4

Note 1) Emission was scanned 1 GHz to 10 GHz; No emissions were detected above the noise floor which was at least 20 dB below the specification limit.

Note 2) LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

Below 1 GHz (Mode5: LTE Band 26 Mid CHNNEL 876.5 MHz)



Critical_Freqs

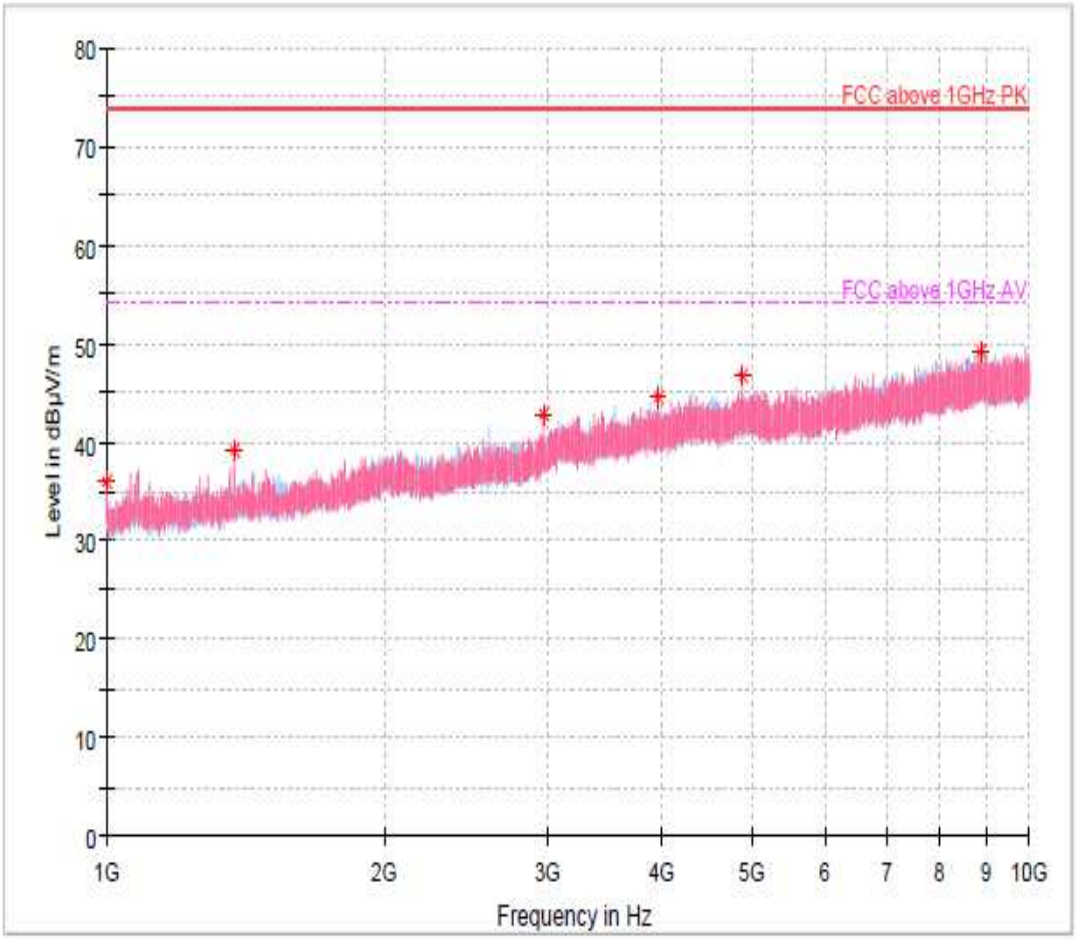
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
38.245000	34.99	40.00	5.01	100.0	V	144.0	-11.2
42.333333	36.88	40.00	3.12	100.0	V	121.0	-10.1
64.088889	31.61	40.00	8.39	100.0	V	233.0	-12.8
106.471667	29.65	43.50	13.85	100.0	H	224.0	-12.0
740.971667	42.92	46.00	3.08	100.0	H	144.0	-0.7
831.866667	115.77	46.00	-69.77	100.0	H	174.0	-0.3
876.540556	53.92	46.00	-7.92	100.0	H	123.0	0.1
951.633889	43.67	46.00	2.33	100.0	H	150.0	0.5

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
38.245000	30.92	40.00	9.08	100.0	V	144.0	-11.2
42.333333	32.40	40.00	7.60	100.0	V	121.0	-10.3
64.088889	26.39	40.00	13.61	100.0	V	233.0	-12.6
106.471667	23.35	43.50	20.15	100.0	H	224.0	-12.0
740.971667	38.07	46.00	7.93	100.0	H	144.0	-0.7
951.633889	38.66	46.00	7.34	100.0	H	150.0	0.5

Note1) Unwanted emissions captured from 814MHz to 849MHz and from 859MHz to 894MHz were the TX and RX signals generated from the call-simulator.

Above 1 GHz (Mode5: LTE Band 26 Mid CHNNEL 876.5 MHz)



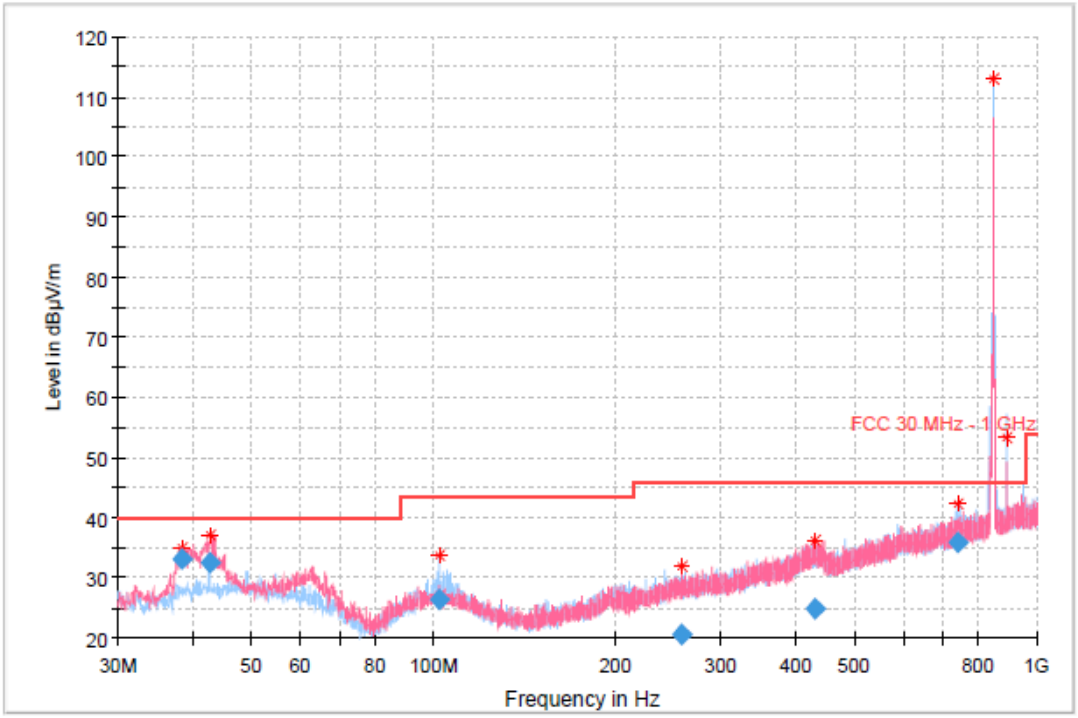
Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1000.264706	35.91	---	74.00	38.09	200.0	V	15.0	-11.3
1375.088235	39.15	---	74.00	34.85	200.0	V	286.0	-9.6
2978.147059	42.85	---	74.00	31.15	100.0	V	134.0	-4.0
3950.676471	44.43	---	74.00	29.57	100.0	V	259.0	-1.0
4876.882353	46.80	---	74.00	27.20	200.0	V	0.0	0.8
8858.588235	49.25	---	74.00	24.75	100.0	V	301.0	5.5

Note 1) Emission was scanned 1 GHz to 10 GHz; No emissions were detected above the noise floor which was at least 20 dB below the specification limit.

Note 2) LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

Below 1 GHz (Mode5: LTE Band 26 High CHNNEL 892.5 MHz)



Critical_Freqs

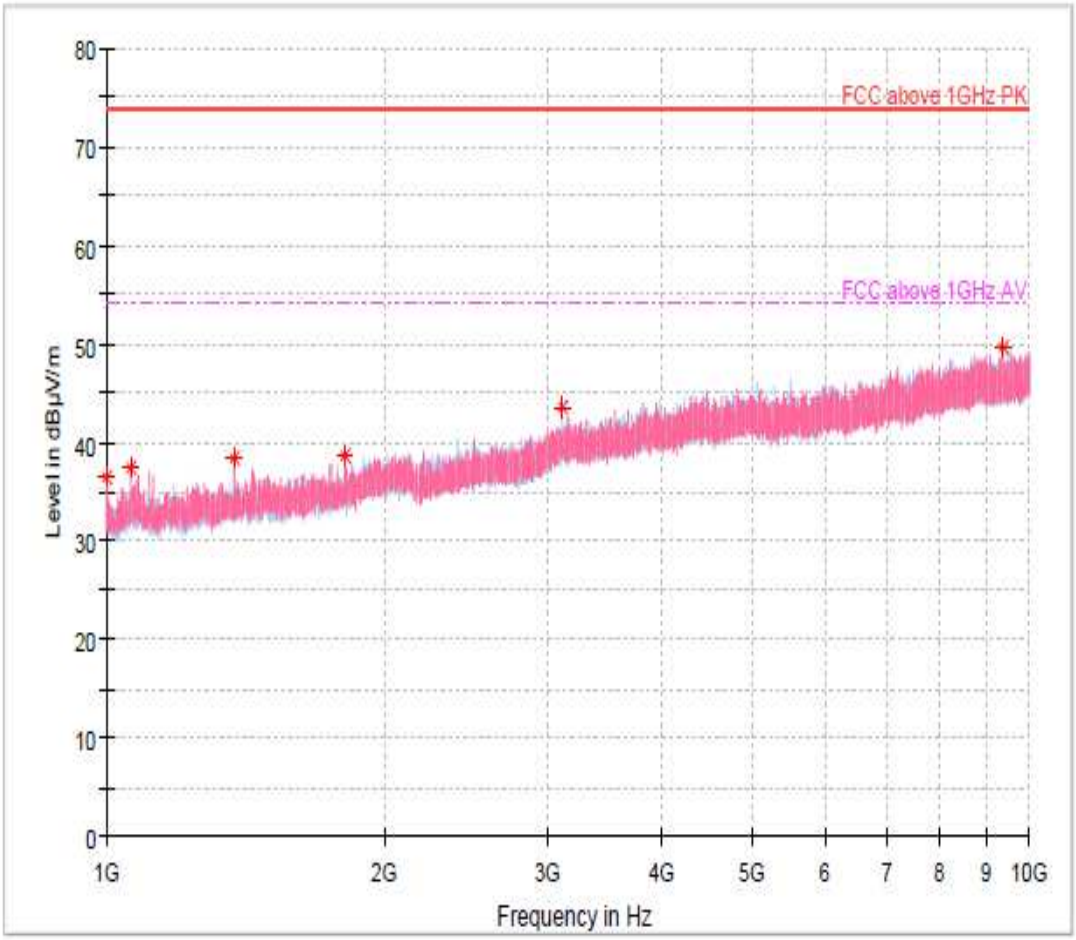
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
38.151111	35.12	40.00	4.88	100.0	V	50.0	-11.3
42.764444	37.02	40.00	2.98	100.0	V	264.0	-10.1
102.195556	33.64	43.50	9.87	100.0	H	0.0	-11.8
258.610556	31.91	46.00	14.09	300.0	V	335.0	-10.1
429.133889	36.26	46.00	9.74	200.0	V	116.0	-5.8
740.036667	42.31	46.00	3.69	100.0	H	3.0	-0.7
847.710000	112.87	46.00	-66.87	100.0	H	222.0	0.0
892.545556	53.47	46.00	-7.47	300.0	H	137.0	0.4

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
38.151111	33.12	40.00	6.88	100.0	V	50.0	-11.3
42.764444	32.51	40.00	7.49	100.0	V	264.0	-10.2
102.195556	26.37	43.50	17.13	100.0	H	0.0	-11.8
258.610556	20.76	46.00	25.24	300.0	V	335.0	-10.1
429.133889	24.97	46.00	21.03	200.0	V	116.0	-5.9
740.036667	36.02	46.00	9.98	100.0	H	3.0	-0.7

Note1) Unwanted emissions captured from 814MHz to 849MHz and from 859MHz to 894MHz were the TX and RX signals generated from the call-simulator.

Above 1 GHz (Mode5: LTE Band 26 High CHNNEL 892.5 MHz)



Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1000.264706	36.49	---	74.00	37.51	200.0	V	2.0	-11.3
1063.000000	37.54	---	74.00	36.46	200.0	V	232.0	-11.0
1375.352941	38.40	---	74.00	35.60	200.0	V	218.0	-9.6
1812.911765	38.71	---	74.00	35.29	200.0	V	57.0	-7.9
3115.000000	43.54	---	74.00	30.46	200.0	H	6.0	-2.9
9348.029412	49.55	---	74.00	24.45	100.0	H	311.0	5.9

Note 1) Emission was scanned 1 GHz to 10 GHz; No emissions were detected above the noise floor which was at least 20 dB below the specification limit.

Note 2) LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

Appendix A. Test site accreditations

Certificate	Nation	Agency	Code	Remark
Accreditation	USA	A2LA	4068.03	31 July, 2019
Accreditation	KOREA	RRA	KR0158	10 January, 2020
Registration	Japan	VCCI	4013	17 February,2020
Accreditation	USA MRA	FCC	KR0158, 666061	17 March, 2020
Accreditation	CANADA MRA	ISED	KR0158, 25944	17 March, 2020
Accreditation	Vietnam MRA	MIC	KR0158	20 April, 2020

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the “General requirements for the competent of calibration and testing laboratory”.

Appendix B. Measurement Uncertainties

Test Item	Measurement uncertainty
Conducted emission	2.62 dB
Radiated emission (1㎓ Below)	4.04 dB
Radiated emission (1㎓ Over)	5.10 dB
Note 1: Measurement uncertainty is calculated in according with CISPR 16-4-2: 2011+A1:2014+A2:2018 The measurement uncertainty is given with a confidence of 95 % with the coverage factor, k=2.	