



FCC CFR47 PART 15 SUBPART C

DTS Wireless LAN(802.11ax)

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, ANT+, NFC and WPT

MODEL NUMBER : SM-G973N

FCC ID: A3LSMG973KOR

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Testing
Laboratory

TL-637

Revision History

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, ANT+, NFC and WPT

MODEL NUMBER: SM-G973N

SERIAL NUMBER: R38KA0BE04H, R38KA0BE5CF (RADIATED, Original);
R38KA0BCW8E (CONDUCTED, Original);
R39KA0LF5PR, R39KA0LETVN (RADIATED, Spotcheck);

DATE TESTED: NOV 09, 2018 - DEC 24, 2018 (Original)
DEC 03, 2018 - DEC 24, 2018 (Spot check)

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

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1.1. INTRODUCTION OF TEST DATA REUSE

This report referenced from the FCC ID: A3LSMG973F DTS WLAN(FCC CFR 47 Part 15C). And the applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID.

1.2. DIFFERENCE

The FCC ID: A3LSMT973F, shares the same enclosure and circuit board as FCC ID: A3LSMG973F. The WLAN antennas and surrounding circuitry and layout are identical between these two units.

After confirming through preliminary radiated emissions that the performance of the FCC ID: A3LSMG973F remains representative of FCC ID: A3LSMG973KOR. The test data of FCC ID: A3LSMG973F being submitted for this application to cover WLAN features.
 (Include appendix data)

1.3. SPOT CHECK VERIFICATION DATA

(Worst case of the radiated spurious and band edge emissions)

Band	Test Item	Mode	Frequency	Test Limit	Original model	Spot check model	Deviation	Remark
					SM-G973F/DS Results	SM-G973N Results		
					FCC ID : A3LSMG973F	FCC ID : A3LSMG973N		
DTS WLAN 802.11 ax (2.4 GHz)	Band Edge	HE20_RU61_ANT1	2390 MHz	54 dBuV/m	50.86 dBuV/m	50.42 dBuV/m	-0.44 dB	
	RSE	HE20_SU_ALL	2437 MHz	54 dBuV/m	35.73 dBuV/m	34.46 dBuV/m	-1.27 dB	2nd Harmonic

Comparison of two models, upper deviation is within 3dB range and all test results are under FCC Technical Limits.

1.4. REFERENCE DETAIL

Reference application that contains the reused reference data.

Equipment Class	Reference FCC ID	Type Grant/ Permissive Change	Reference Application	Folder Test/RF Exposure	Report Tittle / Section
DTS	A3LSMG973F	Grant	4788725460-E2	Test	FCC Report DTS(802.11b/g/n) WLAN / All sections
			4788725460-E3	Test	FCC Report DTS(802.11ax) WLAN / All sections
			4788725460-E6	Test	FCC Report BLE / All sections
NII	A3LSMG973F	Grant	4788725460-E4	Test	FCC Report UNII (802.11a/b/g/n/ac) WLAN / All sections
			4788725460-E5	Test	FCC Report UNII(802.11ax) WLAN / All sections
DSS	A3LSMG973F	Grant	4788725460-E7	Test	FCC Report BT / All sections
DXX	A3LSMG973F	Grant	4788725460-E8	Test	FCC Report ANT+ / All sections
			4788725460-E9	Test	FCC Report NFC / All sections
DCD	A3LSMG973F	Grant	4788725460-E10	Test	FCC Report WPT / All sections

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods.

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. KDB 558074 D01 15.247 Meas Guidance v05.
4. ANSI C63.10-2013.
5. KDB 662911 D01 v02r01
6. KDB 484596 D01 v01

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

218 Maeyeong-ro	
<input checked="" type="checkbox"/>	Chamber 1
<input checked="" type="checkbox"/>	Chamber 2
<input type="checkbox"/>	Chamber 3

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <http://www.iasonline.org/PDF/TL/TL-637.pdf>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	2.32 dB
Radiated Disturbance, Below 1GHz	3.86 dB
Radiated Disturbance, Above 1 GHz	5.97 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, ANT+, NFC and WPT. This test report addresses the DTS (WLAN) operational mode.

WiFi MIMO Condition

Frequency	Mode	Antenna 1	Antenna 2
2.4 GHz	802.11g	TX / RX	TX / RX
	802.11g MIMO	TX / RX	TX / RX
	802.11n	TX / RX	TX / RX
	802.11n MIMO	TX / RX	TX / RX
	802.11ax	TX / RX	TX / RX
	802.11ax MIMO	TX / RX	TX / RX
5 GHz	802.11a	TX / RX	TX / RX
	802.11a MIMO	TX / RX	TX / RX
	802.11n	TX / RX	TX / RX
	802.11n MIMO	TX / RX	TX / RX
	802.11ac	TX / RX	TX / RX
	802.11ac MIMO	TX / RX	TX / RX
	802.11ax	TX / RX	TX / RX
	802.11ax MIMO	TX / RX	TX / RX

Simultaneous TX Condition (RSDB)

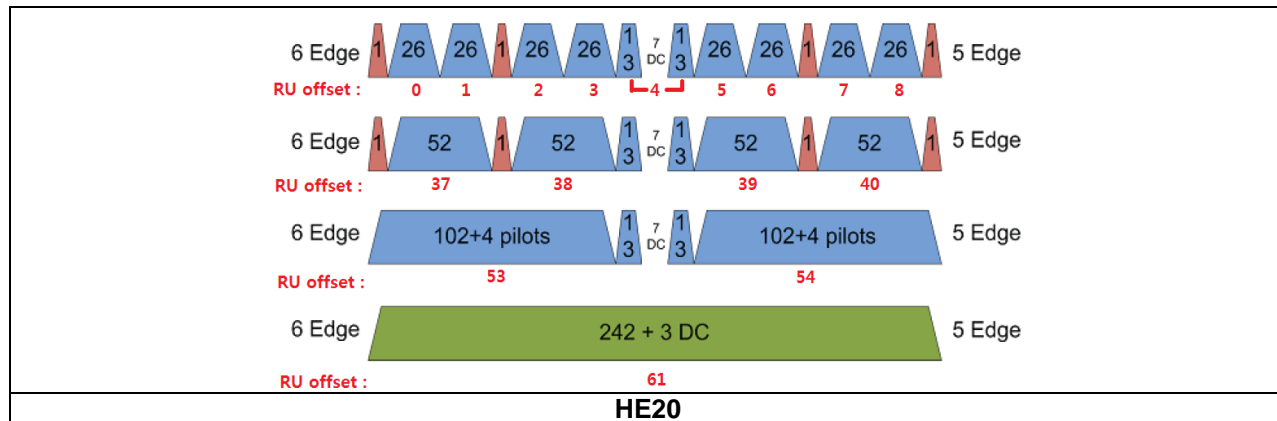
	# TX	5GHz WIFI [dBm]		2.4GHz WIFI [dBm]	
		Ant1	Ant2	Ant1	Ant2
2.4 GHz + 5 GHz RSDB Only	2	A	-	-	B
	2	-	A	B	-
	2	A	-	B	-
	2	-	A	-	B
2.4 GHz + 5 GHz RSDB & MIMO	3	A	A	B	-
	3	A	A	-	B
	3	A	-	B	B
	3	-	A	B	B
2.4 GHz + 5 GHz RSDB MIMO	4	A	A	B	B

Simultaneous TX Condition Bluetooth with 5GHz WIFI (Not RSDB)

	# TX	5GHz WIFI		2.4GHz BT
		ANT1	ANT2	ANT1
2.4GHz BT+5GHz WIFI (Not RSDB)	2	A	-	B
	2	-	A	B
	3	A	A	B

Spurious Emissions for Simultaneous Transmission were reported on the UNII test report(4788725709-E4) section 11.5.

802.11ax RU allocations



Test RU offset for tones

Mode	Tones number in RU	RU offset
HE20	26T	0
		4
		8
	52T	37
		38
		40
	106T	53
		54
	242T / SU <small>Note 1</small>	61 / -

Note 1: Full RU(Resource Unit) 242T mode and SU(Single Unit) mode have no difference in physical waveform. This report has been reported the Full RU 242T mode with highest output power in SISO and the SU mode with highest output power in MIMO. For MIMO, the Tx power in each antenna is 3 dB back-off except for SU mode.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum total conducted average output power as follows:

Frequency Range [MHz]	Mode	Output Power [dBm]		Output Power [mW]	
		Antenna1	Antenna2	Antenna1	Antenna2
2412 - 2472	802.11ax HE20 SISO	15.60	15.20	36.31	33.11
	802.11ax HE20 MIMO	18.73		74.64	

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes internal antenna, with antenna1's maximum gain of -5.0 dBi and antenna2's maximum gain of -5.7 dBi .

5.4. LIST OF TEST REDUCTION AND MODES

The output power on covered modes is equal to or less than one referenced.

Frequency Range (MHz)	Mode	Covered by
2412 - 2472	802.11ax HE20 SU mode 1TX	802.11ax HE20 RU 242T mode 1TX
	802.11ax HE20 RU 242T mode 2TX SDM/STBC	802.11ax HE20 SU mode 2TX CDD

5.5. TESTED CHANNELS LIST

RU mode (for partial)	CHANNEL	Frequency (MHz)
LOW	1	2412
MID	6	2437
HIGH	11	2462
REDUCTION HIGH 1	12	2467
REDUCTION HIGH 2	13	2472

SU and 242T mode	CHANNEL	Frequency (MHz)
LOW	1	2412
MID	6	2437
HIGH	10	2457
REDUCTION HIGH 1	11	2462
REDUCTION HIGH 2	12	2467
REDUCTION HIGH 3	13	2472

5.6. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1GHz and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Radiated emission above 1GHz was performed with the EUT set to transmit low/mid/high channels.

For SISO, the fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

For MIMO, the fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z it was determined that Y orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Y orientation.

Based on the baseline scan, the worst-case data rates were:

802.11ax HE20 mode: MCS0

Note : : Some radiated test results performed on the 1Tx antenna condition is worst, so test report described all radiated test results.(Antenna 1-1Tx, Antenna 2-1Tx, Antenna ALL 2Tx CDD)

Worst-case selection criteria for test items :

- For the band-edge test, it was tested at RU allocations adjacent to band-edge for each RU Tones. As a result of checking each RU allocations by conduction, the RU allocations adjacent to band-edge was worst.
- For the spurious emissions, it was tested at the RU allocation with actual highest power and RU allocation with actual highest PSD for channel.
- For the 6dB Bandwidth, it was tested at the RU allocation with lowest tones number for each bandwidth.
- For the PSD, it was tested at the Low/Mid/High with worst target power.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA200	R37KB5B03T1SE3	N/A
Data Cable	SAMSUNG	EP-DG970BBE	N/A	N/A
Earphone	SAMSUNG	EO-IG955	N/A	N/A

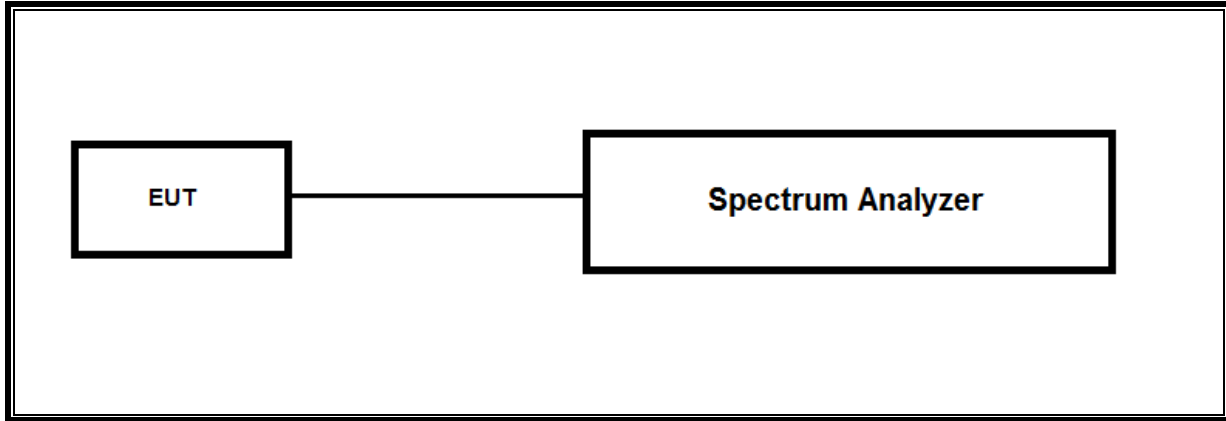
I/O CABLE

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	C Type	Shielded	1.1m	N/A
2	Audio	2	Mini-Jack	Unshielded	1.2m	N/A

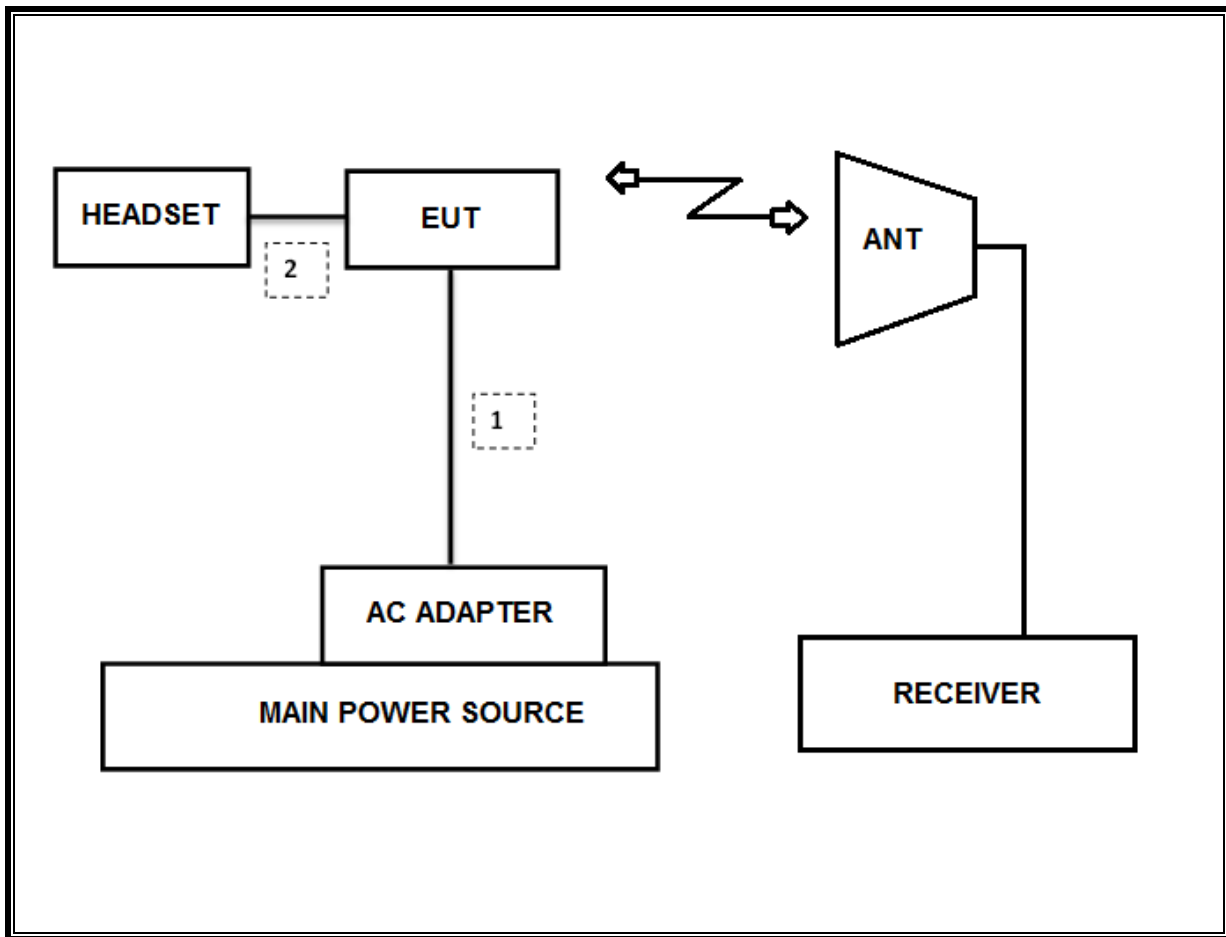
TEST SETUP

The EUT is a stand-alone unit during the tests.
 Test software exercised the EUT to enable DTS mode.

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	Manufacturer	Model	S/N	Cal Due
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	750	08-04-20
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	08-04-20
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	08-04-20
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	10-26-19
Antenna, Horn, 18 GHz	ETS	3115	00167211	08-04-20
Antenna, Horn, 18 GHz	ETS	3115	00161451	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00168724	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00168717	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00205959	08-04-20
Antenna, Horn, 40 GHz	ETS	3116C	00166155	12-04-19
Antenna, Horn, 40 GHz	ETS	3116C	00168645	12-04-19
Antenna, Horn, 40 GHz	ETS	3116C-PA	00168841	08-09-19
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-07-19
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-07-19
Preamplifier, 1000 MHz	Sonoma	310N	370599	08-06-19
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	08-07-19
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-07-19
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	08-07-19
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	08-07-19
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	08-06-19
Spectrum Analyzer, 43.5 GHz	R&S	FSW43	104089	08-06-19
Average Power Sensor	Agilent / HP	U2000	MY54270007	08-07-19
Attenuator	PASTERNAK	PE7087-10	A001	08-08-19
Attenuator	PASTERNAK	PE7087-10	A008	08-08-19
Attenuator	PASTERNAK	PE7004-10	2	08-07-19
Attenuator	PASTERNAK	PE7087-10	A009	08-08-19
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-06-19
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-06-19
EMI Test Receive, 44 GHz	R&S	ESW44	101590	08-06-19
EMI Test Receive, 3 GHz	R&S	ESR3	101832	08-06-19
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	08-07-19
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	08-07-19
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	020	08-06-19
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	08-07-19
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	08-07-19
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	08-06-19
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	08-07-19
High Pass Filter 6GHz	Micro-Tronics	HPS17542	016	08-07-19
High Pass Filter 6GHz	Micro-Tronics	HPS17542	021	08-06-19
LISN	R&S	ENV-216	101837	08-09-19
UL Software				
Description	Manufacturer	Model	Version	
Radiated software	UL	UL EMC	Ver 9.5	
AC Line Conducted software	UL	UL EMC	Ver 9.5	

7. REFERENCE MEASUREMENT RESULTS

7.1. ON TIME AND DUTY CYCLE RESULTS

Mode		ANT	Tone	On Time [mS]	Period [mS]	Duty Cycle X [linear]	Duty Cycle X [%]	Duty Cycle Correction Factor [dB]	1/T Minimum VBW [kHz]
802.11ax	HE20	SISO	26T	4.798	5.373	0.89	89.30	0.49	0.208
			52T	4.960	5.537	0.90	89.58	0.48	0.202
			106T	5.237	5.815	0.90	90.06	0.45	0.191
			242T	5.462	6.038	0.90	90.46	0.44	0.183
		MIMO	SU	3.873	3.972	0.98	97.51	0.11	0.258
			26T	5.175	5.753	0.90	89.95	0.46	0.193
			52T	5.256	5.833	0.90	90.11	0.45	0.190
			106T	5.387	5.964	0.90	90.33	0.44	0.186
			242T	5.631	6.207	0.91	90.72	0.42	0.178
			SU	1.972	2.072	0.95	95.17	0.21	0.507

LIMITS

None; for reporting purposes only.

DUTY CYCLE PLOTS

Please refer to the Appendix B.

8. MEASUREMENT METHODS

6 dB BW : KDB 558074 D01 v05, Section 8.2.

OUTPUT POWER : KDB 558074 D01 v05, Section 8.3.2.3.

POWER SPECTRAL DENSITY : KDB 558074 D01 v05, Section 8.4.

Out-of-band EMISSIONS (Conducted) : KDB 558074 D01 v05, Section 8.5, 8.7.

Out-of-band EMISSIONS IN NON-RESTRICTED BANDS: KDB 558074 D01 v05, Section 8.5.

Out-of-band EMISSIONS IN RESTRICTED BANDS : KDB 558074 D01 v05, Section 8.6.

AC Power Line Conducted Emission : ANSI C63.10-2013, Section 6.2.

9. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	Occupied Band width (6dB)	>500KHz	Conducted	Pass
2.1051, 15.247 (d)	Band Edge / Conducted Spurious Emission	-30dBc		Pass
15.247 (b)(3)	TX conducted output power	<30dBm		Pass
15.247 (e)	PSD	<8dBm		Pass
15.207 (a)	AC Power Line conducted emissions	Section 10	Power Line conducted	Pass
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass

10. ANTENNA PORT TEST RESULTS

10.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

Reference to KDB 558074 D01 15.247 Meas Guidance v05: The transmitter output is connected to a spectrum analyzer with the RBW set to 100KHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

10.1.1. 802.11ax HE20 MODE IN THE 2.4 GHz BAND

Channel	Center Freq.(MHz)	Tones	RU offset	6 dB BW (MHz)		Minimum Limit (MHz)
				ANT1	ANT2	
Low	2412	26T	0	2.070	2.039	0.5
Mid	2437	26T	0	2.045	2.073	0.5
High	2457	26T	0	2.078	2.083	0.5
REDUTION HIGH 1	2462	26T	0	2.063	2.076	0.5
REDUTION HIGH 2	2467	26T	0	2.002	2.077	0.5
REDUTION HIGH 3	2472	26T	0	2.069	2.071	0.5
Mnimum 6dB BW (MHz)				2.002	2.039	0.5

6 dB BANDWIDTH PLOTS

Please refer to the Appendix B.

10.2. OUTPUT POWER

LIMITS

FCC §15.247

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss was entered as an offset in the power meter to allow for direct reading of power.

Output power measurement was performed utilizing the 8.3.2.3 under KDB558074 D01 15.247 Meas Guidance v05.

Duty cycle correction factor is already added to the average output power results for duty cycle factor < 98%.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is unequal among the chains.
The directional gain is:

2.4GHz

Frequency Band [MHz]	Antenna1 Gain [dBi]	Antenna2 Gain [dBi]	Correlated Chains Directional Gain [dBi]
2400 ~ 2483.5	-5.00	-5.70	-2.33

RESULTS

10.2.1. 802.11ax HE20 1TX MODE IN THE 2.4 GHZ BAND

Limits

Frequency Range [MHz]	Directional Gain ANTENNA1 [dBi]	Directional Gain ANTENNA2 [dBi]	FCC Power Limit [dBm]	Max Power [dBm]
2412 - 2472	-5.00	-5.70	30.00	30

Output Power Results

Channel	Frequency [MHz]	Tones	RU offset	Antenna 1 Meas Power [dBm]	Antenna 2 Meas Power [dBm]	Antenna 1 Corr'd Power [dBm]	Antenna 2 Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	2412	26T	0	11.38	11.20	11.38	11.20	30.00	-18.62
			4	11.58	11.53	11.58	11.53	30.00	-18.42
			8	11.64	11.48	11.64	11.48	30.00	-18.36
		52T	37	12.42	12.12	12.42	12.12	30.00	-17.58
			38	12.32	12.62	12.32	12.62	30.00	-17.38
			40	12.69	12.65	12.69	12.65	30.00	-17.31
		106T	53	13.48	13.41	13.48	13.41	30.00	-16.52
			54	13.60	13.45	13.60	13.45	30.00	-16.40
Mid	2437	26T	0	11.63	11.60	11.63	11.60	30.00	-18.37
			4	11.96	11.67	11.96	11.67	30.00	-18.04
			8	11.25	11.42	11.25	11.42	30.00	-18.58
		52T	37	12.70	12.84	12.70	12.84	30.00	-17.16
			38	12.79	12.72	12.79	12.72	30.00	-17.21
			40	12.01	12.57	12.01	12.57	30.00	-17.43
		106T	53	13.58	13.44	13.58	13.44	30.00	-16.42
			54	13.35	13.28	13.35	13.28	30.00	-16.65
High	2462	26T	0	11.31	11.55	11.31	11.55	30.00	-18.45
			4	11.94	11.84	11.94	11.84	30.00	-18.06
			8	11.17	11.46	11.17	11.46	30.00	-18.54
		52T	37	12.50	12.17	12.50	12.17	30.00	-17.50
			38	11.93	12.58	11.93	12.58	30.00	-17.42
			40	11.83	12.62	11.83	12.62	30.00	-17.38
		106T	53	13.15	13.06	13.15	13.06	30.00	-16.85
			54	13.66	13.24	13.66	13.24	30.00	-16.34

Channel	Frequency [MHz]	Tones	RU offset	Antenna 1 Meas Power [dBm]	Antenna 2 Meas Power [dBm]	Antenna 1 Corr'd Power [dBm]	Antenna 2 Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
12	2467	26T	0	2.51	2.70	2.51	2.70	30.00	-27.30
			4	2.95	3.22	2.95	3.22	30.00	-26.78
			8	2.23	2.39	2.23	2.39	30.00	-27.61
		52T	37	2.70	2.90	2.70	2.90	30.00	-27.10
			38	2.96	3.10	2.96	3.10	30.00	-26.90
			40	2.55	2.69	2.55	2.69	30.00	-27.31
		106T	53	2.94	2.94	2.94	2.94	30.00	-27.06
			54	2.46	2.88	2.46	2.88	30.00	-27.12
		13	2472	26T	0	0.83	0.70	0.83	0.70
4	0.74				0.68	0.74	0.68	30.00	-29.26
8	0.86				0.46	0.86	0.46	30.00	-29.14
52T	37			0.99	0.97	0.99	0.97	30.00	-29.01
	38			0.82	0.91	0.82	0.91	30.00	-29.09
	40			0.40	0.79	0.40	0.79	30.00	-29.21
106T	53			0.69	1.29	0.69	1.29	30.00	-28.71
	54			0.45	0.52	0.45	0.52	30.00	-29.48

Output Power Results

Channel	Frequency [MHz]	Tones	RU offset	Antenna 1 Meas Power [dBm]	Antenna 2 Meas Power [dBm]	Antenna 1 Corr'd Power [dBm]	Antenna 2 Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	2412	242T	61	15.30	15.20	15.30	15.20	30.00	-14.70
Mid	2437	242T	61	15.60	15.13	15.60	15.13	30.00	-14.40
High	2457	242T	61	15.15	15.14	15.15	15.14	30.00	-14.85
11	2462	242T	61	13.26	12.98	13.26	12.98	30.00	-16.74
12	2467	242T	61	2.38	2.88	2.38	2.88	30.00	-27.12
13	2472	242T	61	0.76	1.03	0.76	1.03	30.00	-28.97

10.2.2. 802.11ax HE20 2TX CDD MODE IN THE 2.4 GHz BAND

Limits

Frequency Range [MHz]	Correlated Chains Directional Gain [dBI]	FCC Power Limit [dBm]	Max Power [dBm]
2412 - 2472	-2.33	30.00	30

Output Power Results

Channel	Frequency [MHz]	Tones	RU offset	Antenna 1 Meas Power [dBm]	Antenna 2 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	2412	26T	0	8.62	7.68	11.19	30.00	-18.81
			4	8.79	8.37	11.60	30.00	-18.40
			8	8.58	8.93	11.77	30.00	-18.23
		52T	37	9.25	8.79	12.04	30.00	-17.96
			38	9.27	9.12	12.21	30.00	-17.79
			40	9.74	9.91	12.84	30.00	-17.16
		106T	53	10.51	10.26	13.40	30.00	-16.60
			54	10.53	10.80	13.68	30.00	-16.32
			0	8.68	8.90	11.80	30.00	-18.20
Mid	2437	26T	4	8.70	8.41	11.57	30.00	-18.43
			8	8.35	7.80	11.09	30.00	-18.91
			37	9.67	9.81	12.75	30.00	-17.25
		52T	38	9.48	9.36	12.43	30.00	-17.57
			40	9.50	9.11	12.32	30.00	-17.68
			53	10.19	10.76	13.49	30.00	-16.51
		106T	54	10.32	10.16	13.25	30.00	-16.75
			0	8.43	8.09	11.27	30.00	-18.73
			26T	4	8.36	8.37	11.38	30.00
8	8.59	8.65		11.63	30.00	-18.37		
37	9.30	9.25		12.29	30.00	-17.71		
High	2462	52T	38	9.10	9.33	12.23	30.00	-17.77
			40	9.66	9.69	12.69	30.00	-17.31
			53	10.20	10.01	13.12	30.00	-16.88
		106T	54	10.15	10.39	13.28	30.00	-16.72

Channel	Frequency [MHz]	Tones	RU offset	Antenna 1 Meas Power [dBm]	Antenna 2 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
12	2467	26T	0	-0.46	0.04	2.81	30.00	-27.19
			4	-0.40	-0.10	2.76	30.00	-27.24
			8	-0.51	-0.66	2.43	30.00	-27.57
		52T	37	0.02	0.08	3.06	30.00	-26.94
			38	-0.13	-0.13	2.88	30.00	-27.12
			40	-0.38	-0.68	2.48	30.00	-27.52
		106T	53	0.13	-0.10	3.03	30.00	-26.97
			54	-0.68	0.02	2.69	30.00	-27.31
13	2472	26T	0	-2.36	-1.78	0.95	30.00	-29.05
			4	-2.63	-2.48	0.46	30.00	-29.54
			8	-2.26	-2.34	0.71	30.00	-29.29
		52T	37	-2.12	-1.60	1.16	30.00	-28.84
			38	-2.62	-2.16	0.63	30.00	-29.37
			40	-2.97	-2.45	0.31	30.00	-29.69
		106T	53	-2.03	-1.93	1.03	30.00	-28.97
			54	-2.48	-2.56	0.49	30.00	-29.51

Output Power Results

Channel	Frequency [MHz]	Tones	RU offset	Antenna 1 Meas Power [dBm]	Antenna 2 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	2412	SU	-	15.89	15.55	18.73	30.00	-11.27
Mid	2437	SU	-	15.73	15.52	18.64	30.00	-11.36
High	2457	SU	-	15.65	15.38	18.53	30.00	-11.47
11	2462	SU	-	13.66	13.14	16.42	30.00	-13.58
12	2467	SU	-	2.68	3.04	5.87	30.00	-24.13
13	2472	SU	-	0.70	0.44	3.58	30.00	-26.42

10.3. PSD

LIMITS

FCC §15.247

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

Power Spectral Density was performed utilizing the section 8.4 under KDB558074 D01 15.247 Meas Guidance v05

RESULTS

10.3.1. 802.11ax HE20 1TX MODE IN THE 2.4 GHZ BAND

Calculation of PPSD result

- Corr'd PPSD [dBm] = Meas PPSD [dBm] + Duty Cycle CF [dB] + Corr'd factor [dB]

Actual RBW	Ref. Bandwidth	Corr'd factor
3 kHz	3 kHz	0.00 dB

PPSD Results

Channel	Frequency [MHz]	Tones	RU offset	Antenna 1	Antenna 2	Antenna 1	Antenna 2	PSD Limit [dBm]	Power Margin [dB]		
				Meas PPSD [dBm]	Meas PPSD [dBm]	Corr'd PPSD [dBm]	Corr'd PPSD [dBm]				
Low	2412	26T	0	-14.74	-15.79	-14.25	-15.30	11.00	-25.25		
			4	-14.88	-15.02	-14.39	-14.53	11.00	-25.39		
			8	-14.56	-14.49	-14.07	-14.00	11.00	-25.00		
		52T	37	-16.84	-15.78	-16.36	-15.30	11.00	-26.30		
			38	-15.76	-15.26	-15.28	-14.78	11.00	-25.78		
			40	-15.51	-14.54	-15.03	-14.06	11.00	-25.06		
		106T	53	-17.92	-18.04	-17.47	-17.59	11.00	-28.47		
			54	-18.23	-18.57	-17.78	-18.12	11.00	-28.78		
		Mid	2437	26T	0	-14.78	-14.23	-14.29	-13.74	11.00	-24.74
					4	-14.41	-14.26	-13.92	-13.77	11.00	-24.77
8	-14.83				-14.31	-14.34	-13.82	11.00	-24.82		
52T	37			-15.33	-14.47	-14.85	-13.99	11.00	-24.99		
	38			-15.06	-15.01	-14.58	-14.53	11.00	-25.53		
	40			-15.02	-14.92	-14.54	-14.44	11.00	-25.44		
106T	53			-18.06	-18.88	-17.61	-18.43	11.00	-28.61		
	54			-18.42	-18.83	-17.97	-18.38	11.00	-28.97		
High	2462			26T	0	-14.88	-14.97	-14.39	-14.48	11.00	-25.39
					4	-14.47	-14.15	-13.98	-13.66	11.00	-24.66
		8	-15.29		-14.78	-14.80	-14.29	11.00	-25.29		
		52T	37	-14.77	-15.27	-14.29	-14.79	11.00	-25.29		
			38	-15.26	-15.03	-14.78	-14.55	11.00	-25.55		
			40	-15.52	-15.04	-15.04	-14.56	11.00	-25.56		
		106T	53	-17.92	-18.74	-17.47	-18.29	11.00	-28.47		
			54	-18.23	-18.58	-17.78	-18.13	11.00	-28.78		

PPSD Results

Channel	Frequency [MHz]	Tones	RU offset	Antenna 1 Meas PPSD [dBm]	Antenna 2 Meas PPSD [dBm]	Antenna 1 Corr'd PPSD [dBm]	Antenna 2 Corr'd PPSD [dBm]	PSD Limit [dBm]	Power Margin [dB]
Low	2412	242T	61	-20.03	-19.87	-19.59	-19.43	11.00	-30.43
Mid	2437	242T	61	-19.07	-19.31	-18.62	-18.86	11.00	-29.62
High	2457	242T	61	-20.24	-20.33	-19.79	-19.88	11.00	-30.79

10.3.2. 802.11ax HE20 2TX CDD MODE IN THE 2.4 GHz BAND

Calculation of PPSD result

- Sum Power [mW] = Ant1_Meas Power [mW] + Ant1_Meas Power [mW]
- Total Corr'd Power [dBm] = Sum Power [dBm] + Duty Cycle CF [dB] + Corr'd factor [dB]

Actual RBW	Ref. Bandwidth	Corr'd factor
3 kHz	3 kHz	0.00 dB

PPSD Results

Channel	Frequency [MHz]	Tones	RU offset	Antenna 1 Meas PPSD [dBm]	Antenna 2 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PSD Limit [dBm]	Power Margin [dB]
Low	2412	26T	0	-18.99	-18.68	-15.36	11.00	-26.36
			4	-17.45	-17.11	-13.81	11.00	-24.81
			8	-16.59	-16.71	-13.18	11.00	-24.18
		52T	37	-19.92	-19.71	-16.35	11.00	-27.35
			38	-19.81	-18.29	-15.52	11.00	-26.52
			40	-19.17	-17.66	-14.89	11.00	-25.89
		106T	53	-22.12	-21.42	-18.31	11.00	-29.31
			54	-20.81	-21.37	-17.63	11.00	-28.63
Mid	2437	26T	0	-17.66	-17.01	-13.85	11.00	-24.85
			4	-17.78	-16.93	-13.86	11.00	-24.86
			8	-17.76	-18.13	-14.47	11.00	-25.47
		52T	37	-19.34	-19.02	-15.72	11.00	-26.72
			38	-19.43	-18.83	-15.66	11.00	-26.66
			40	-19.52	-19.57	-16.08	11.00	-27.08
		106T	53	-21.46	-21.42	-17.99	11.00	-28.99
			54	-22.15	-22.22	-18.73	11.00	-29.73
High	2462	26T	0	-17.69	-17.71	-14.23	11.00	-25.23
			4	-18.10	-17.47	-14.30	11.00	-25.30
			8	-17.38	-17.08	-13.76	11.00	-24.76
		52T	37	-19.31	-19.31	-15.85	11.00	-26.85
			38	-19.46	-19.36	-15.95	11.00	-26.95
			40	-19.48	-18.41	-15.45	11.00	-26.45
		106T	53	-21.69	-21.41	-18.10	11.00	-29.10
			54	-21.48	-21.33	-17.96	11.00	-28.96

PPSD Results

Channel	Frequency [MHz]	Tones	RU offset	Antenna 1 Meas PPSD [dBm]	Antenna 2 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PSD Limit [dBm]	Power Margin [dB]
Low	2412	SU	-	-19.20	-19.57	-16.16	11.00	-27.16
Mid	2437	SU	-	-18.69	-18.75	-15.50	11.00	-26.50
High	2457	SU	-	-19.59	-20.28	-16.70	11.00	-27.70

PSD PLOTS

Please refer to the Appendix C.

10.4. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

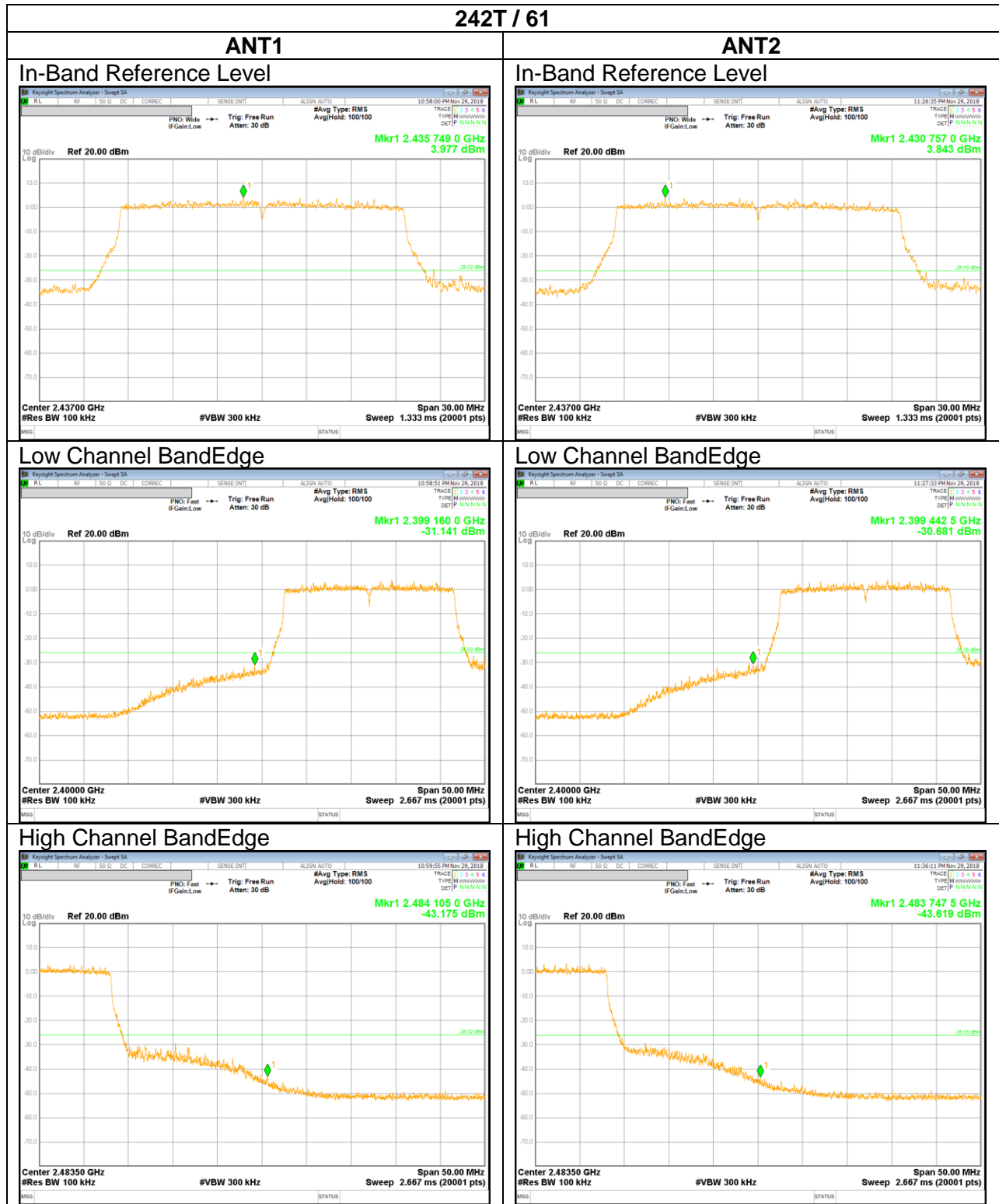
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

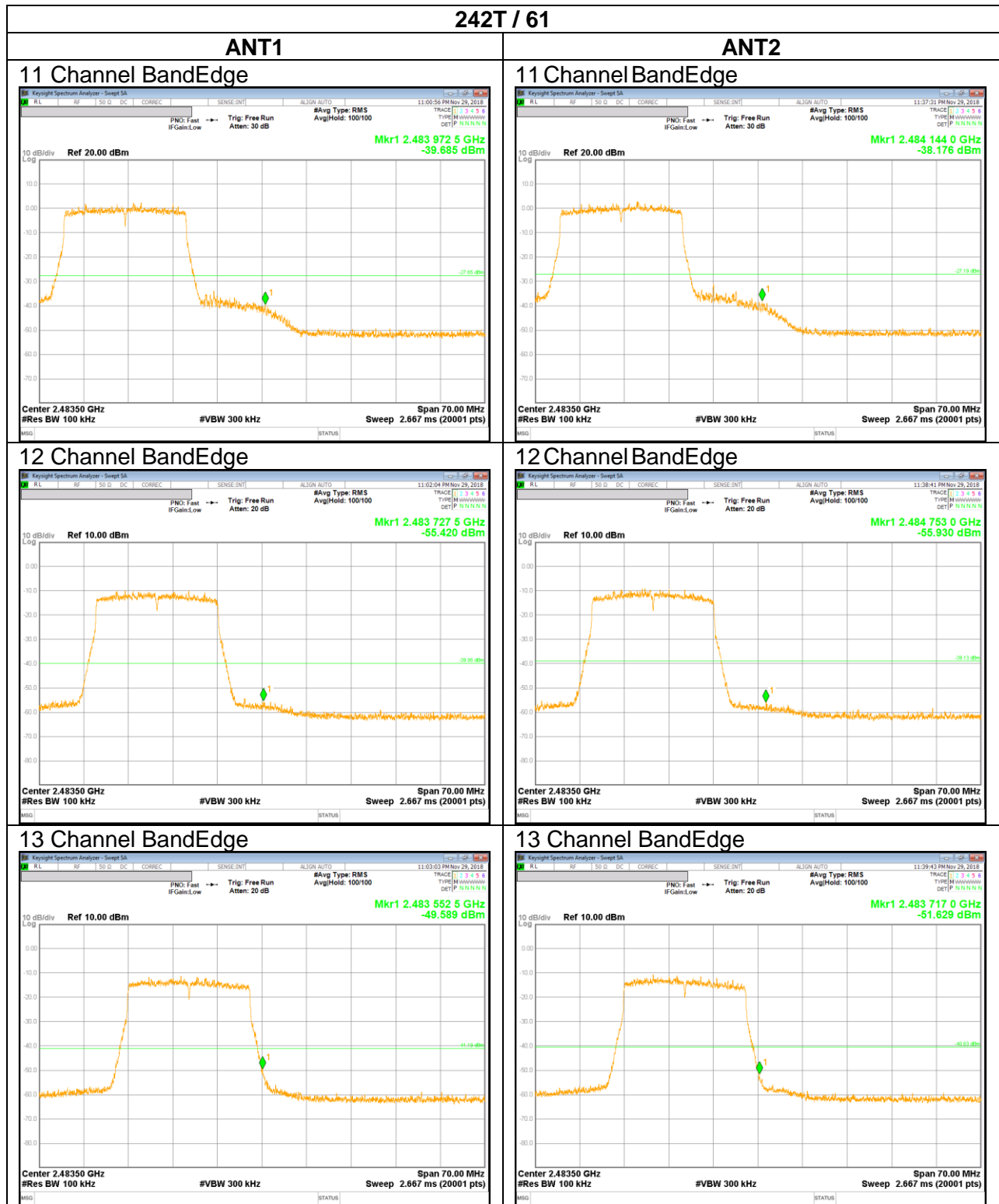
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

10.4.1. 802.11ax HE20 1TX MODE IN THE 2.4 GHz BAND

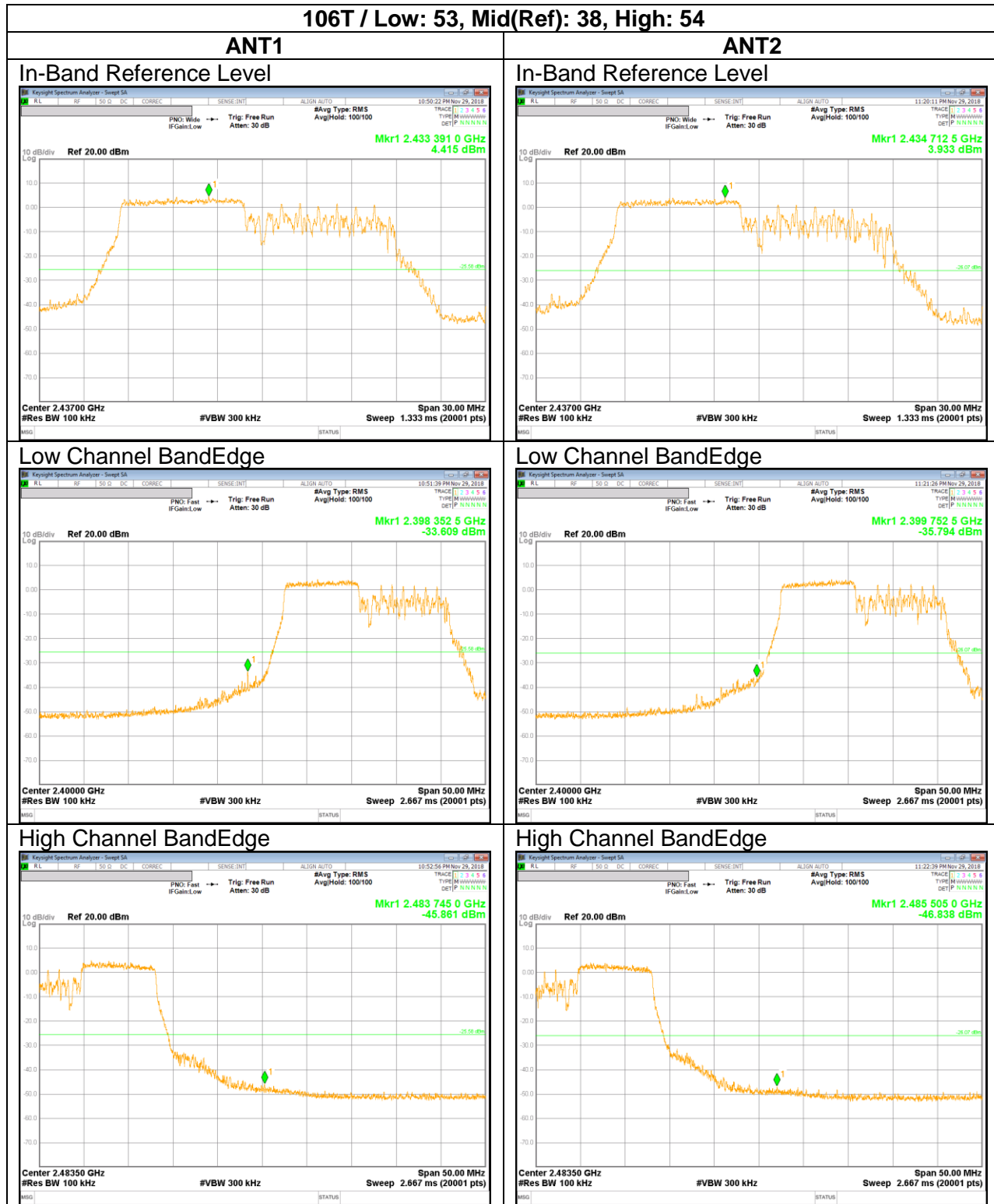




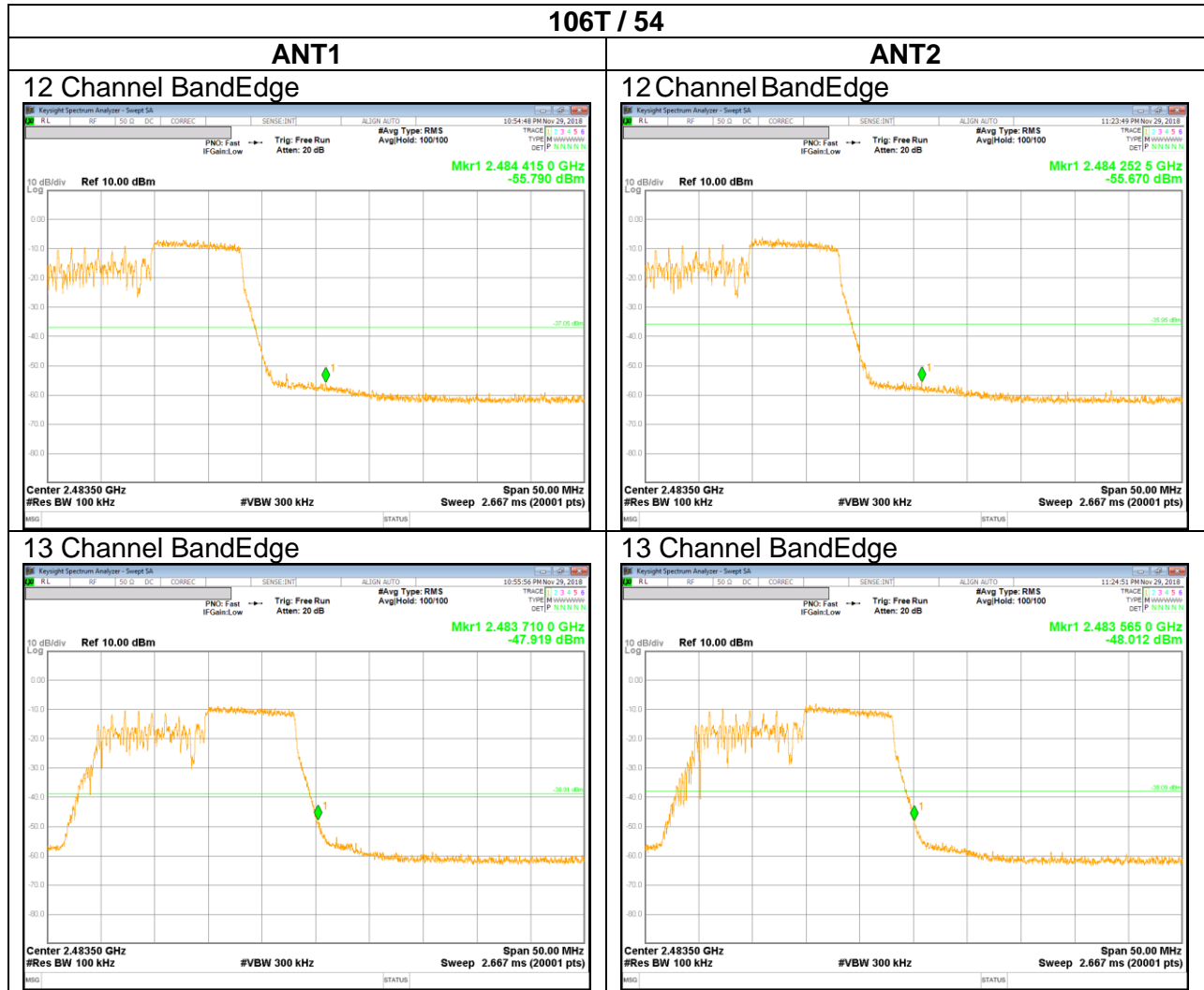
242T / 61



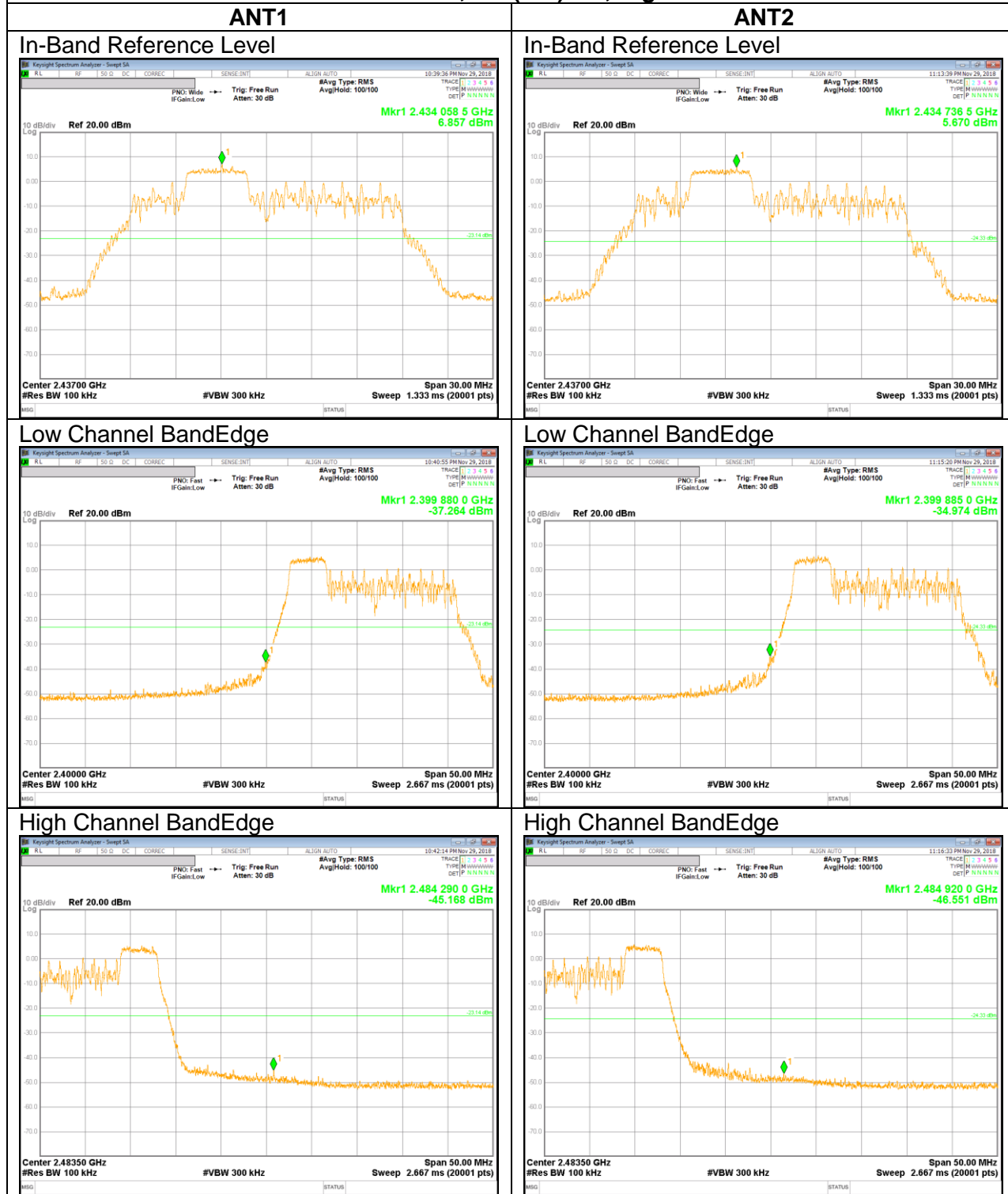
106T / Low: 53, Mid(Ref): 38, High: 54



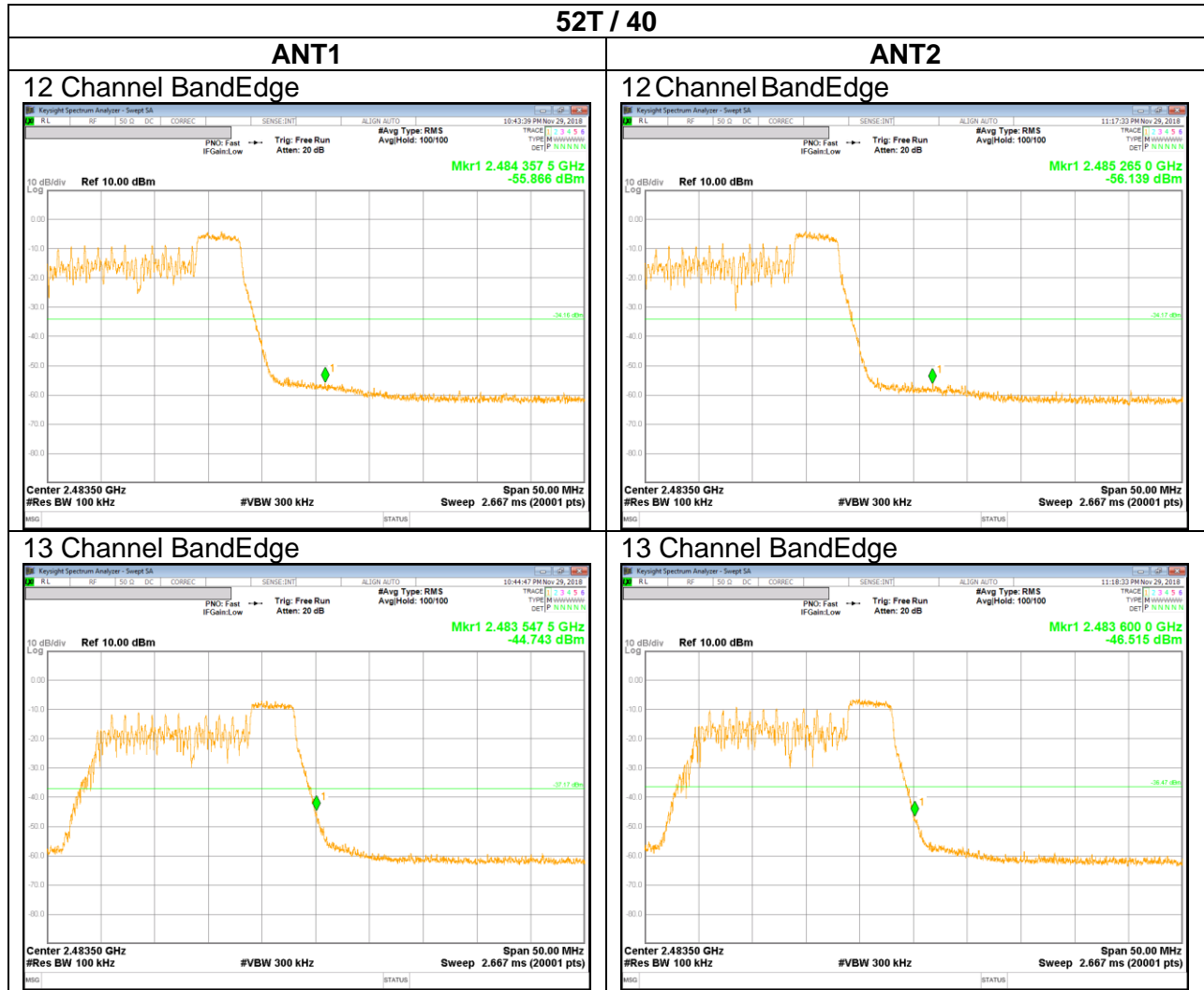
106T / 54



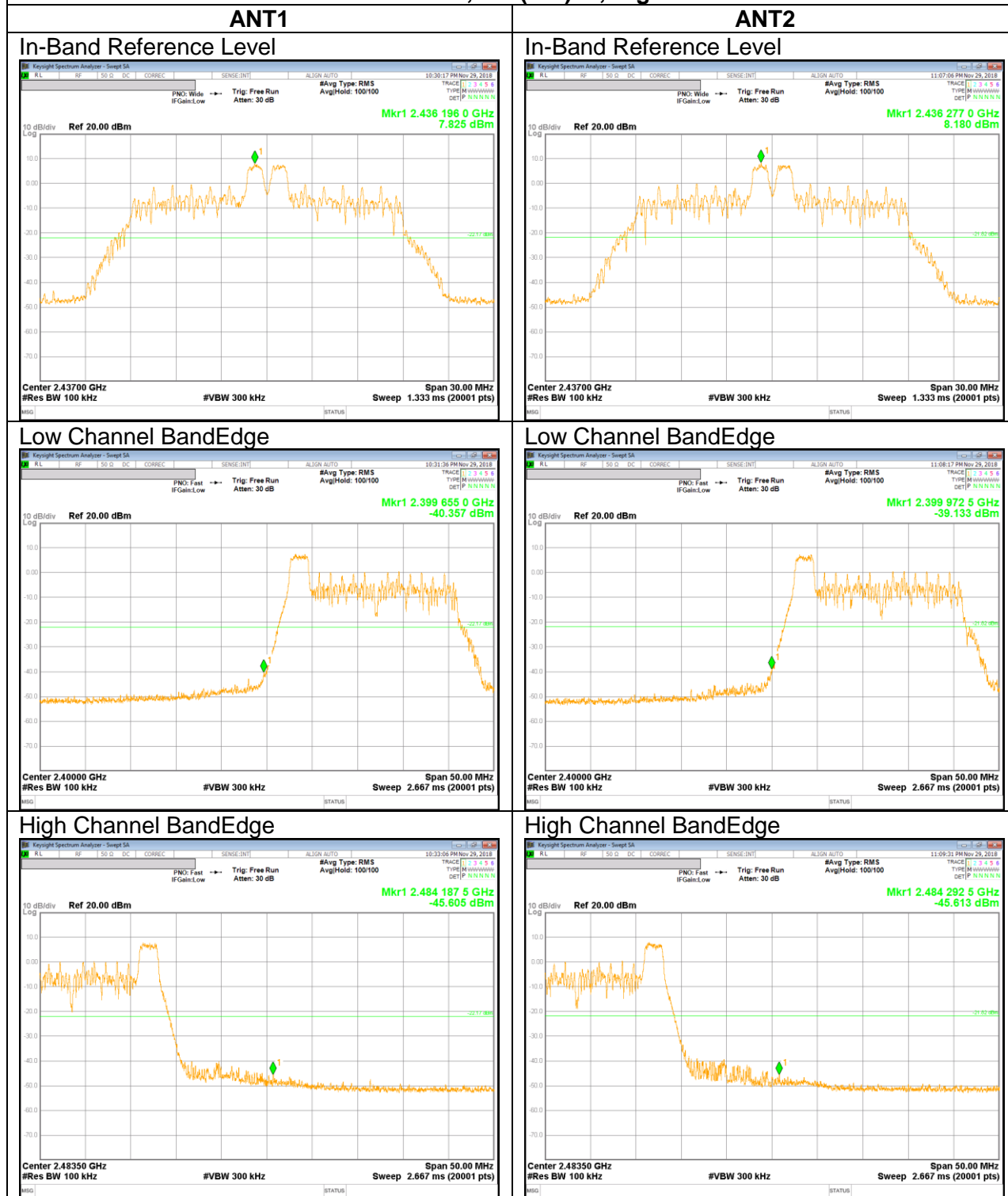
52T / Low: 37, Mid(Ref): 38, High: 40



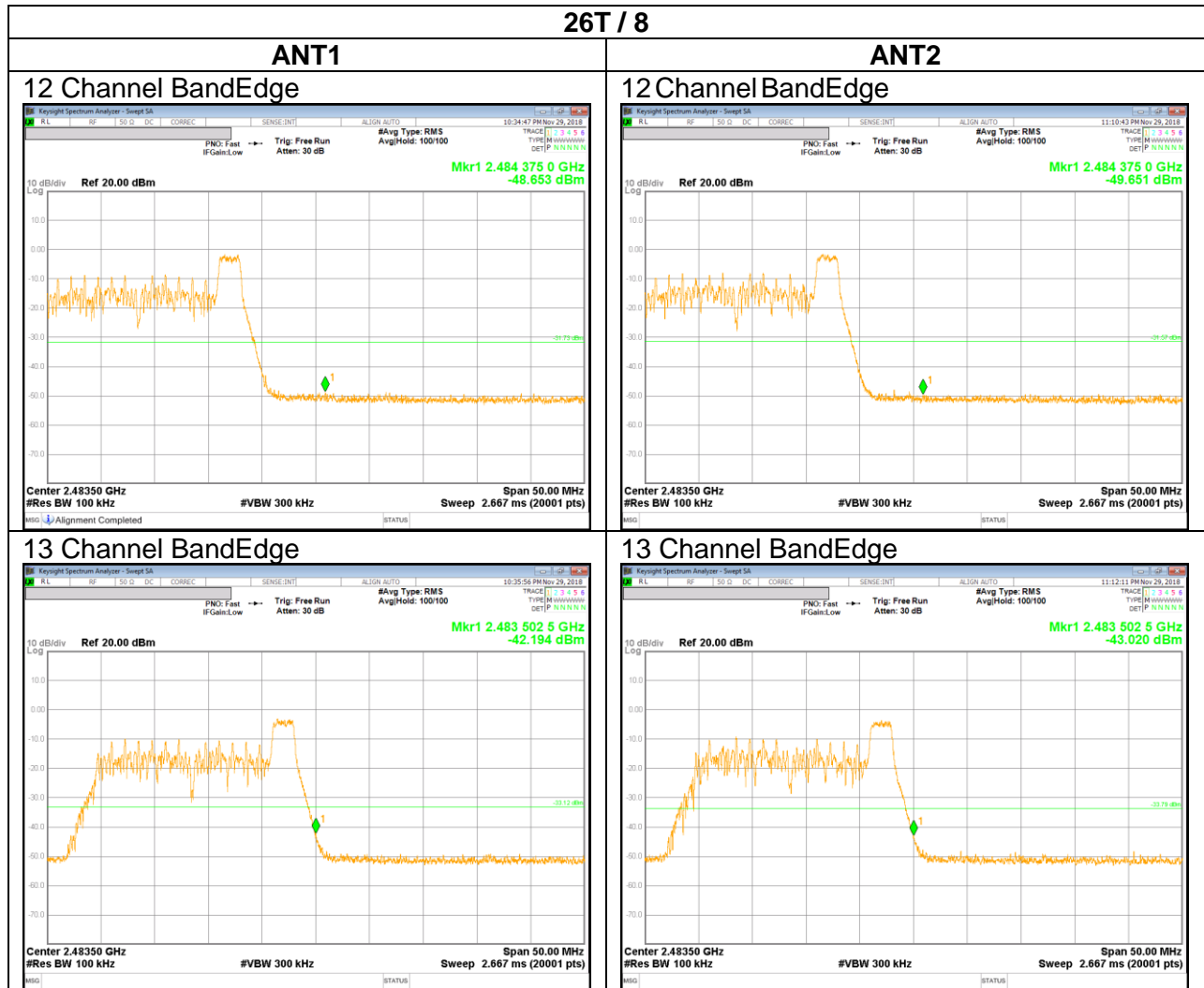
52T / 40



26T / Low: 0, Mid(Ref): 4, High: 8



26T / 8



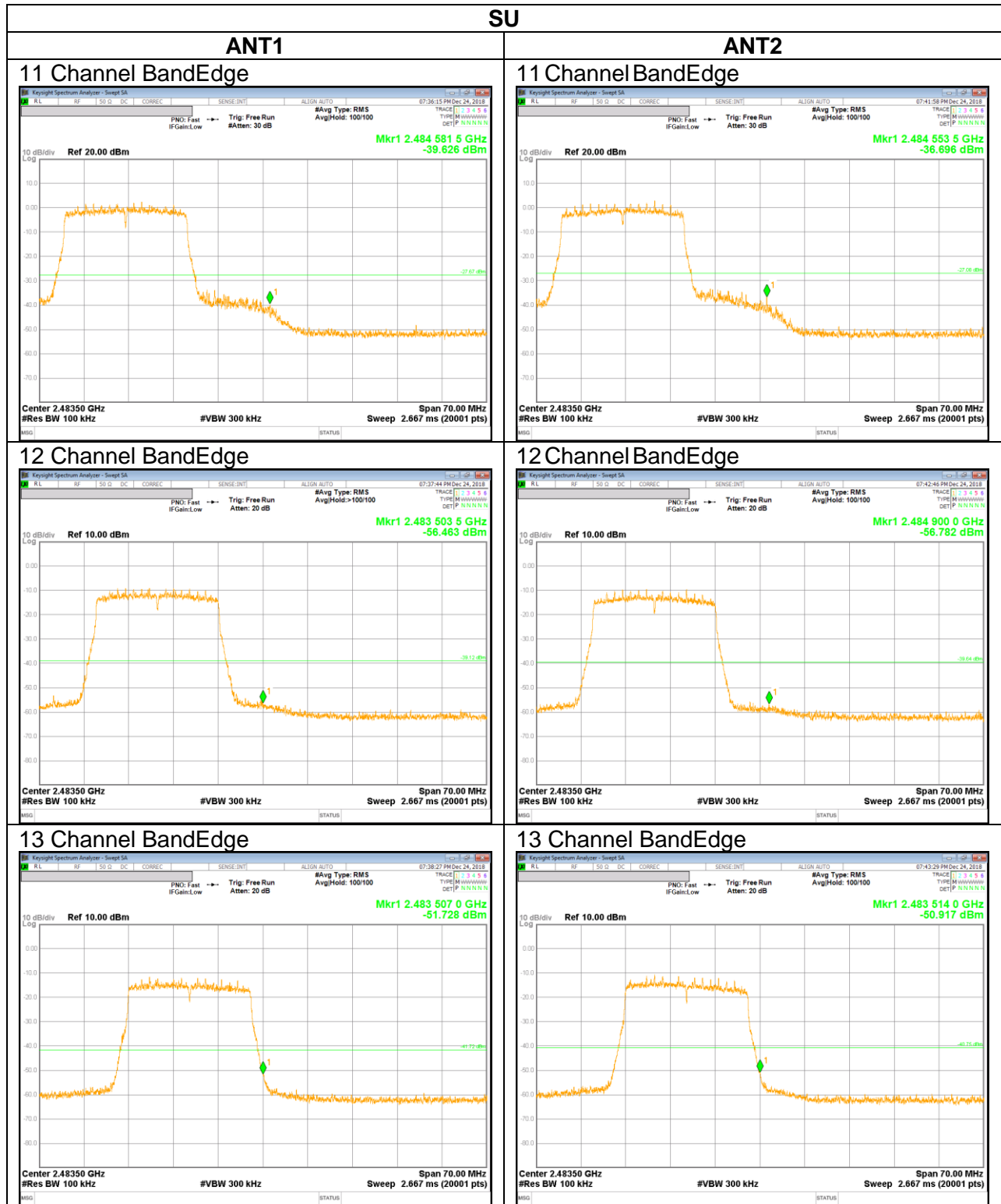
26T / ANT1(Low: 8, Mid: 4 High: 4), ANT2(Low: 8, Mid: 0 High: 4)



10.4.1. 802.11ax HE20 2TX CDD MODE IN THE 2.4 GHz BAND



SU





11. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/m)	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150 cm for above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. (Restricted bandedge, Final detection of spurious harmonic emissions)

Pre-scans to detect harmonic and spurious emissions, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

The spectrum from 1 GHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.
(From 30MHz to 1GHz, test was performed with the EUT set to transmit at the channel with highest output power)

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

Note : Emission was pre-scanned from 9KHz to 30MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).
Per FCC part 15.31(o), test results were not reported.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site.
Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field based on KDB 414788.

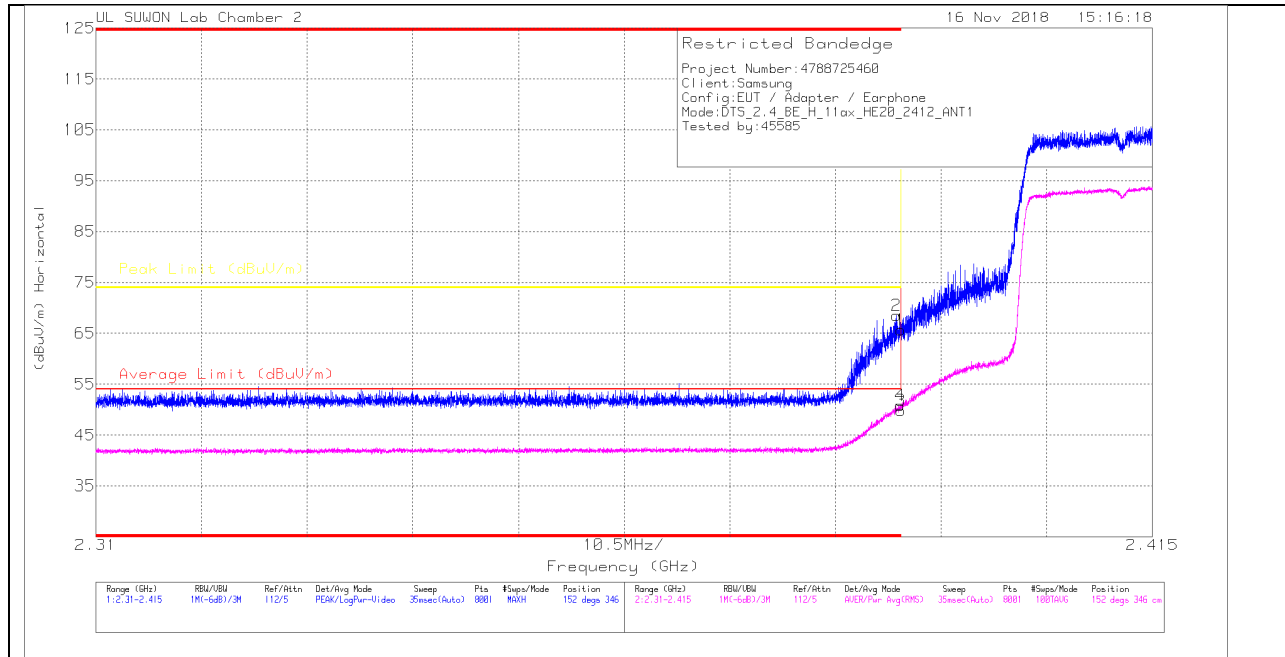
11.1. TRANSMITTER ABOVE 1 GHz_1TX

11.1.1. TX ABOVE 1 GHz 802.11ax HE20 MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

242T RU mode (ANT_1 / RU offset 61)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

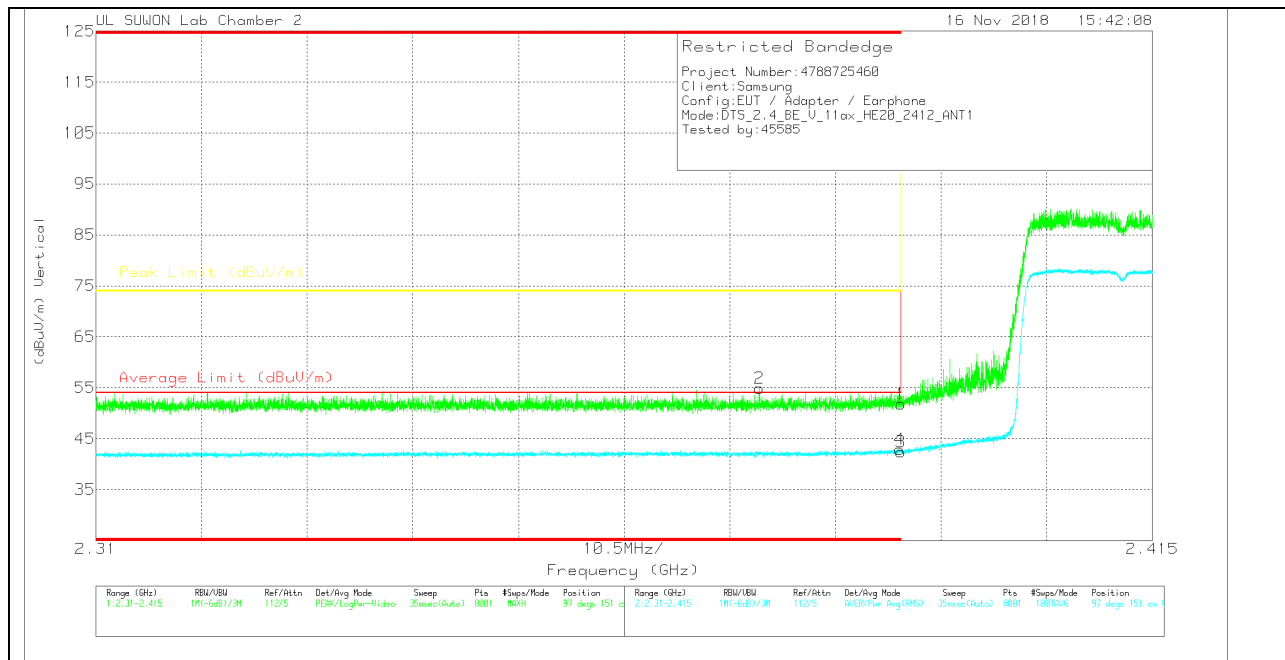
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	54.86	Pk	31.6	-20.8	0	65.66	-	-	74	-8.34	152	346	H
2	* 2.39	57.72	Pk	31.6	-20.8	0	68.52	-	-	74	-8.48	152	346	H
3	* 2.39	38.64	RMS	31.6	-20.8	.44	49.88	54	-4.12	-	-	152	346	H
4	* 2.39	39.62	RMS	31.6	-20.8	.44	50.86	54	-3.14	-	-	152	346	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Pk Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.39	40.97	Pk	31.6	-20.8	0	51.77	-	-	74	-22.23	97	151	V
2	* 2.376	44.15	Pk	31.6	-20.8	0	54.95	-	-	74	-19.05	97	151	V
3	* 2.39	31.16	RMS	31.6	-20.8	.44	42.4	54	-11.6	-	-	97	151	V
4	* 2.39	31.66	RMS	31.6	-20.8	.44	42.9	54	-11.1	-	-	97	151	V

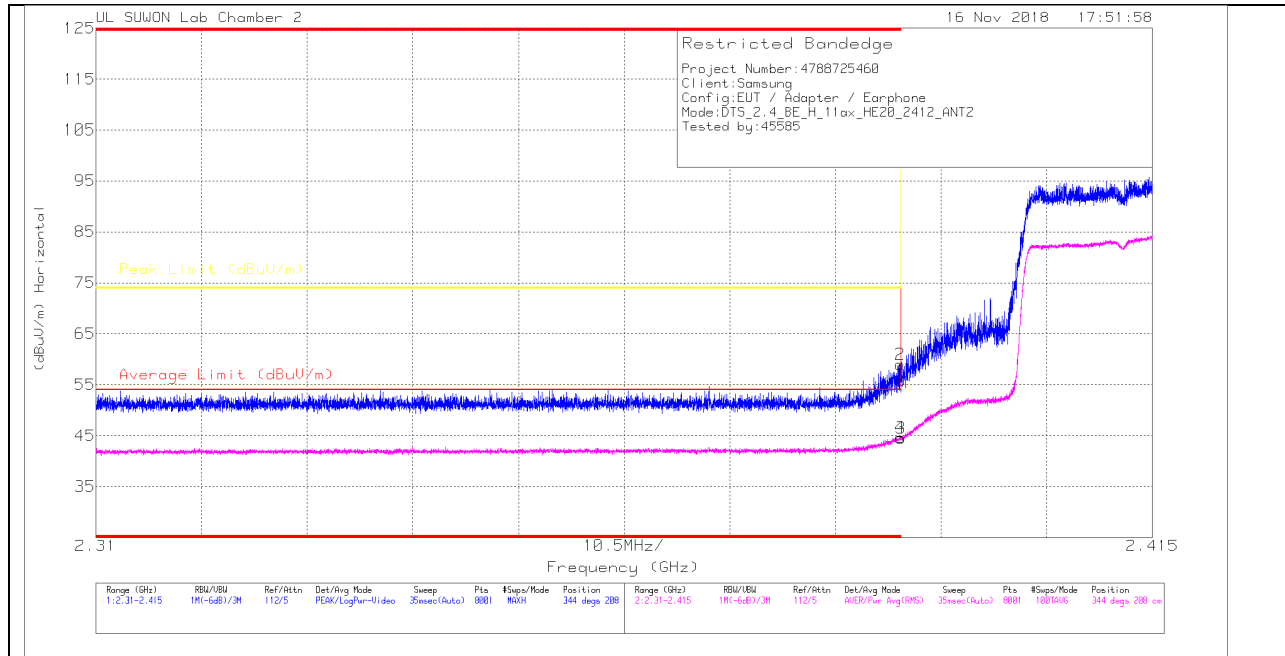
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

242T RU mode (ANT_2 / RU offset 61)

HORIZONTAL PEAK AND AVERAGE PLOT



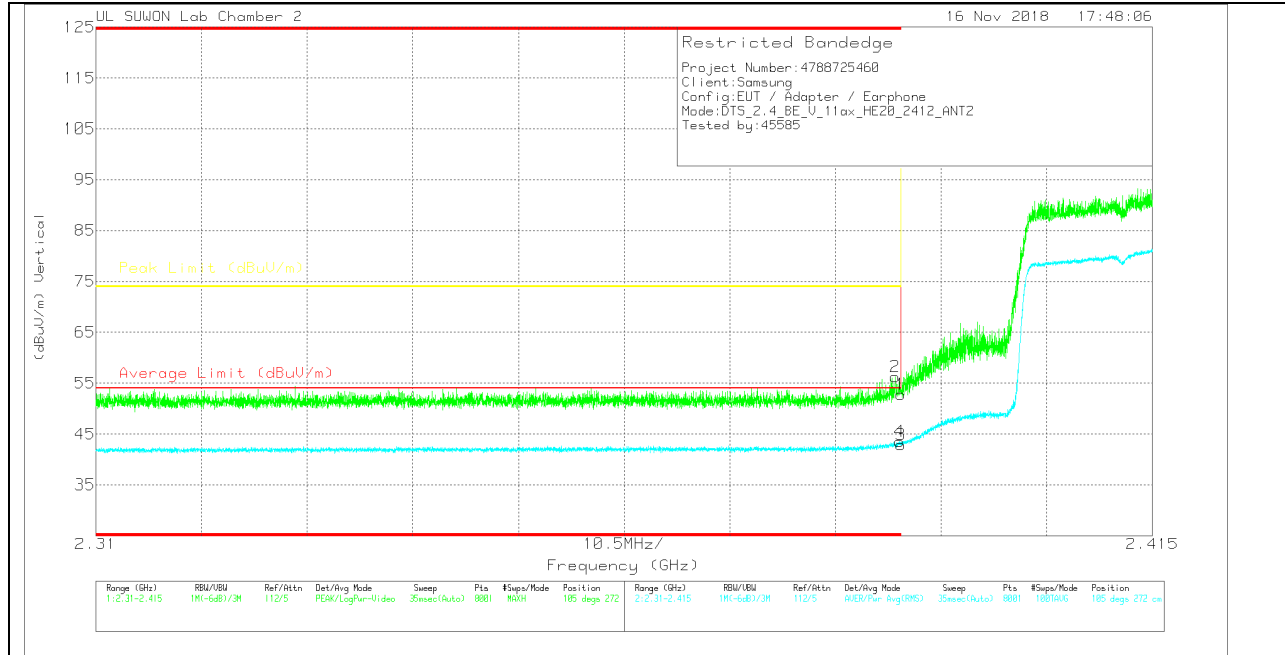
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	44.92	PK	31.6	-20.8	0	55.72	-	-	74	-18.28	344	208	H
2	* 2.39	48.21	PK	31.6	-20.8	0	59.01	-	-	74	-14.99	344	208	H
3	* 2.39	33.22	RMS	31.6	-20.8	.44	44.46	54	-9.54	-	-	344	208	H
4	* 2.39	33.36	RMS	31.6	-20.8	.44	44.6	54	-9.4	-	-	344	208	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	42.05	Pk	31.6	-20.8	0	52.85	-	-	74	-21.15	105	272	V
2	* 2.389	45.52	Pk	31.6	-20.8	0	56.32	-	-	74	-17.68	105	272	V
3	* 2.39	31.62	RMS	31.6	-20.8	.44	42.86	54	-11.14	-	-	105	272	V
4	* 2.39	32.24	RMS	31.6	-20.8	.44	43.48	54	-10.52	-	-	105	272	V

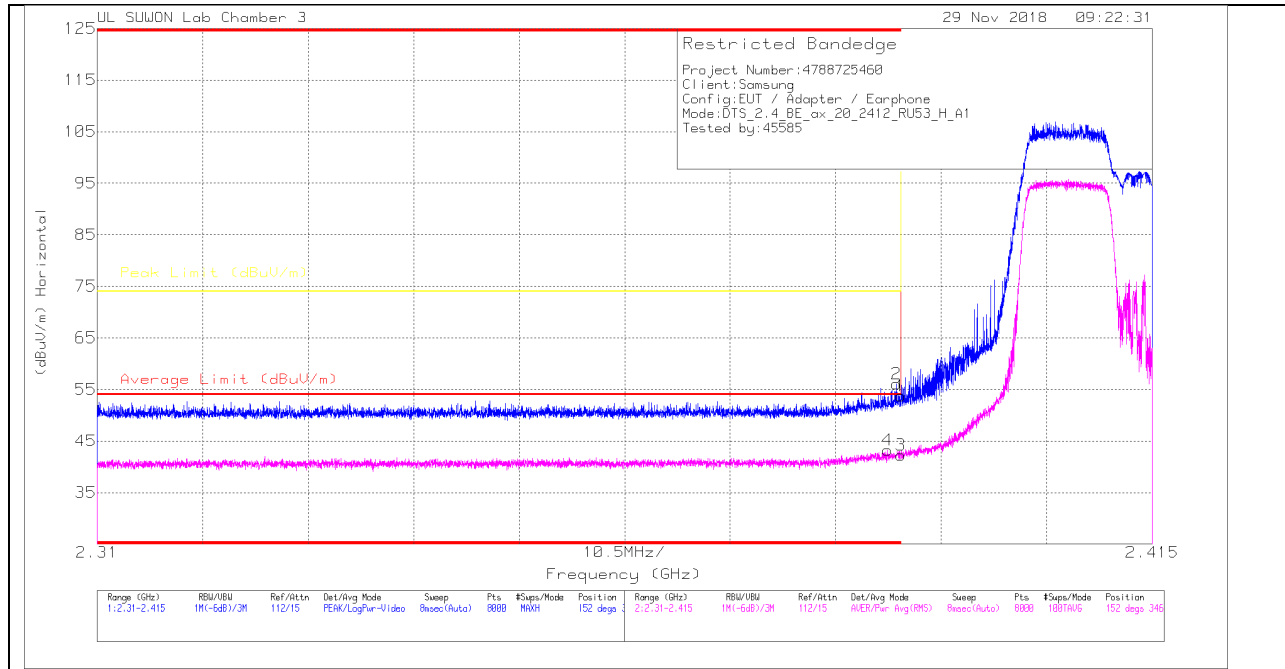
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

106T RU mode (ANT_1 / RU offset 53)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

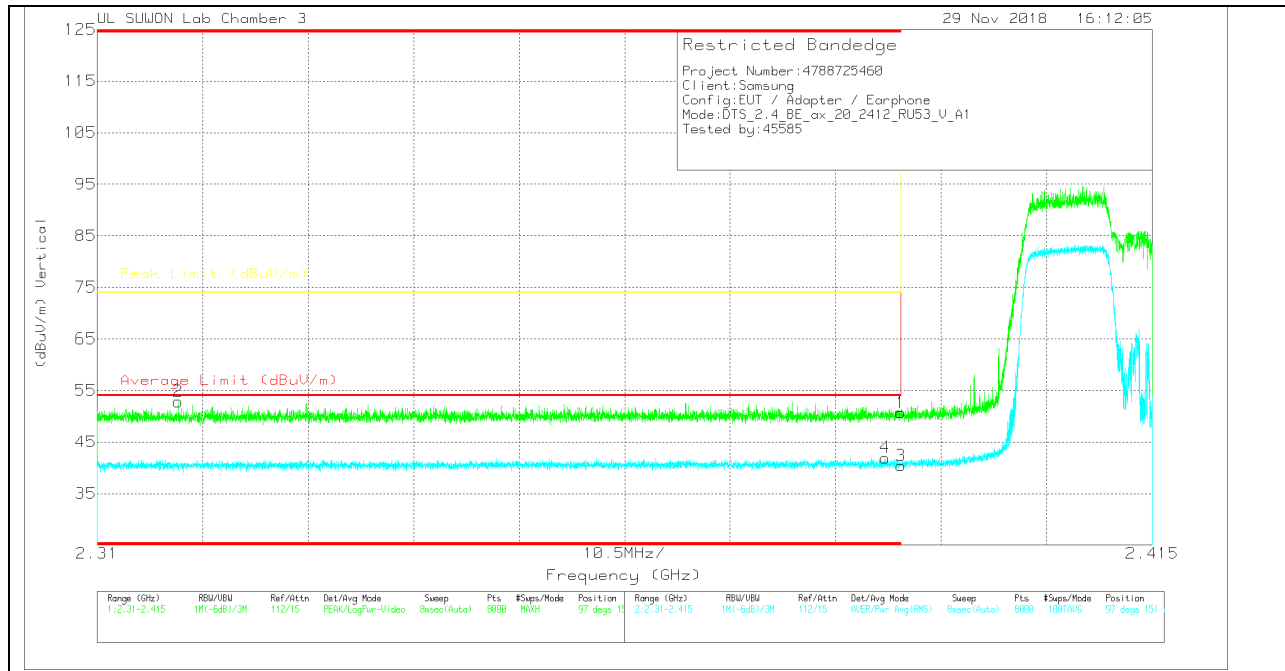
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0020959	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Asmuth (Degs)	Height (cm)	Polarity
1	* 2.39	45.43	Pk	31.7	-23.4	0	53.73	-	-	74	-20.27	152	346	H
2	* 2.39	47.76	Pk	31.7	-23.4	0	56.06	-	-	74	-17.94	152	346	H
3	* 2.39	33.5	RMS	31.7	-23.4	-45	42.25	54	-11.75	-	-	152	346	H
4	* 2.389	34.47	RMS	31.7	-23.4	-45	43.22	54	-10.78	-	-	152	346	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0020959	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	42.38	Pk	31.7	-23.4	0	50.68	-	-	74	-23.32	97	151	V
2	* 2.318	44.74	Pk	31.5	-23.4	0	52.84	-	-	74	-21.16	97	151	V
3	* 2.39	31.65	RMS	31.7	-23.4	-45	40.4	54	-13.6	-	-	97	151	V
4	* 2.388	33.2	RMS	31.7	-23.4	-45	41.95	54	-12.05	-	-	97	151	V

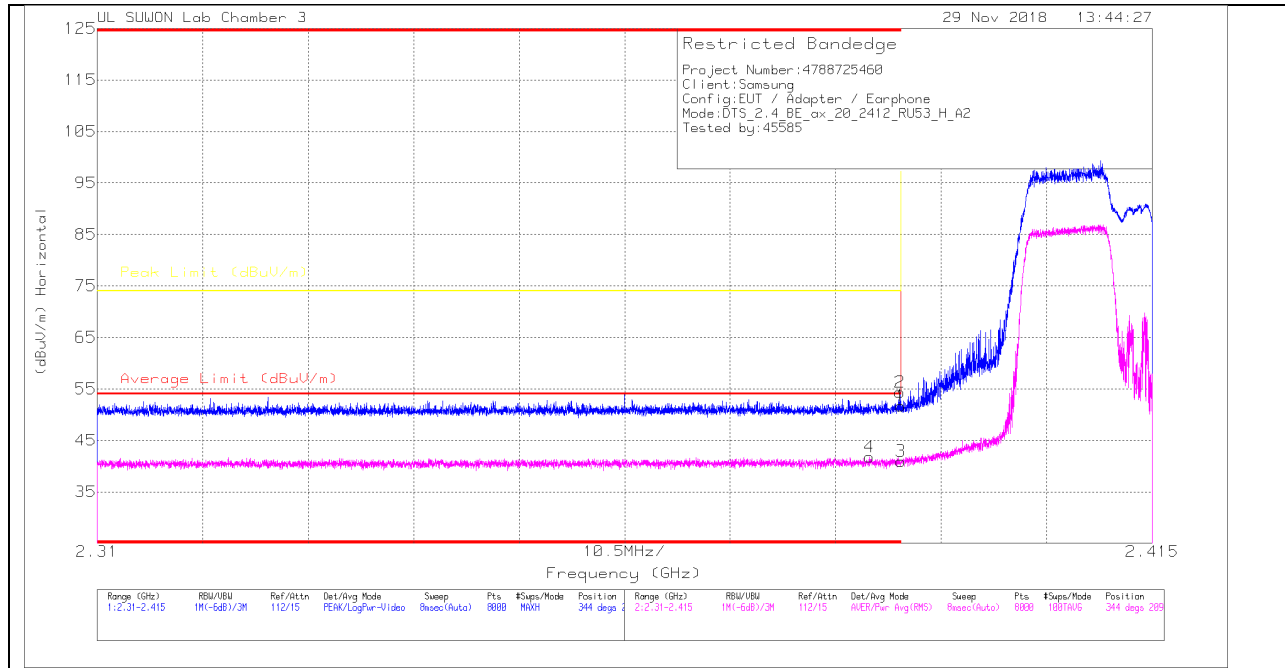
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

106T RU mode (ANT_2 / RU offset 53)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

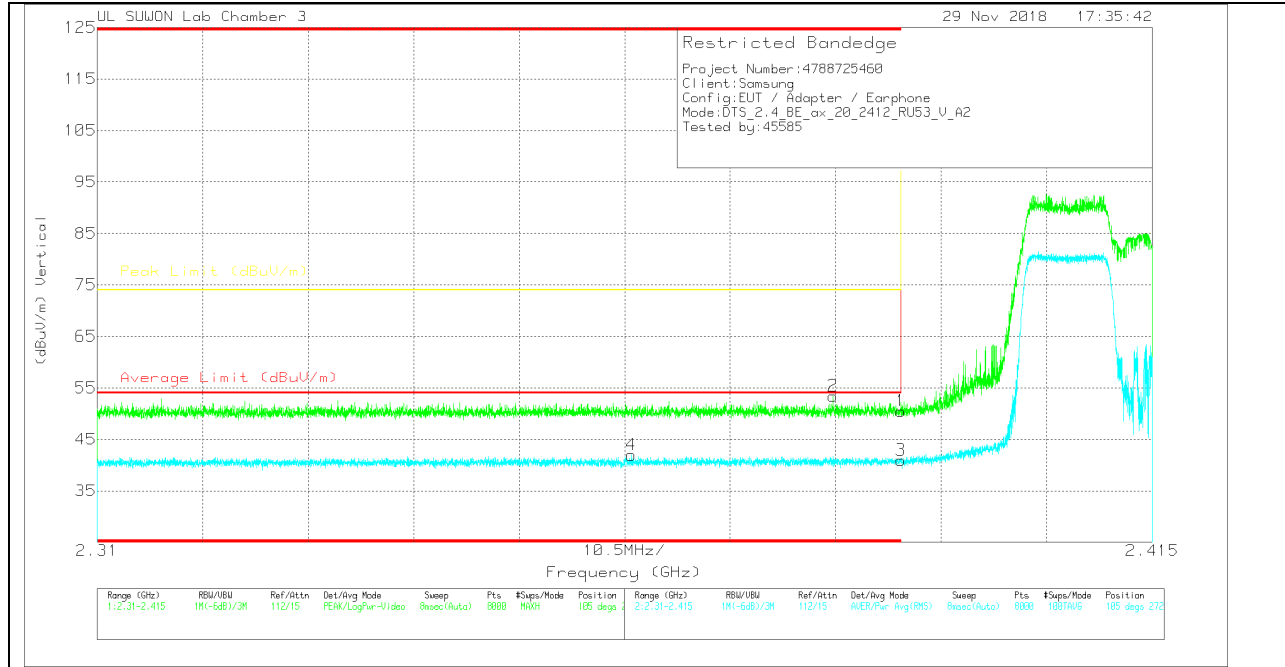
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00205959	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	43.39	Pk	31.7	-23.4	0	51.69	-	-	74	-22.31	344	209	H
2	* 2.39	46.05	Pk	31.7	-23.4	0	54.35	-	-	74	-19.65	344	209	H
3	* 2.39	32.19	RMS	31.7	-23.4	.45	40.94	54	-13.06	-	-	344	209	H
4	* 2.387	33	RMS	31.7	-23.4	.45	41.75	54	-12.25	-	-	344	209	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00209559	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	42.21	Pk	31.7	-23.4	0	50.51	-	-	74	-23.49	105	272	V
2	* 2.383	45.13	Pk	31.7	-23.4	0	53.43	-	-	74	-20.57	105	272	V
3	* 2.39	32.2	RMS	31.7	-23.4	.45	40.95	54	-13.05	-	-	105	272	V
4	* 2.363	33.32	RMS	31.6	-23.4	.45	41.97	54	-12.03	-	-	105	272	V

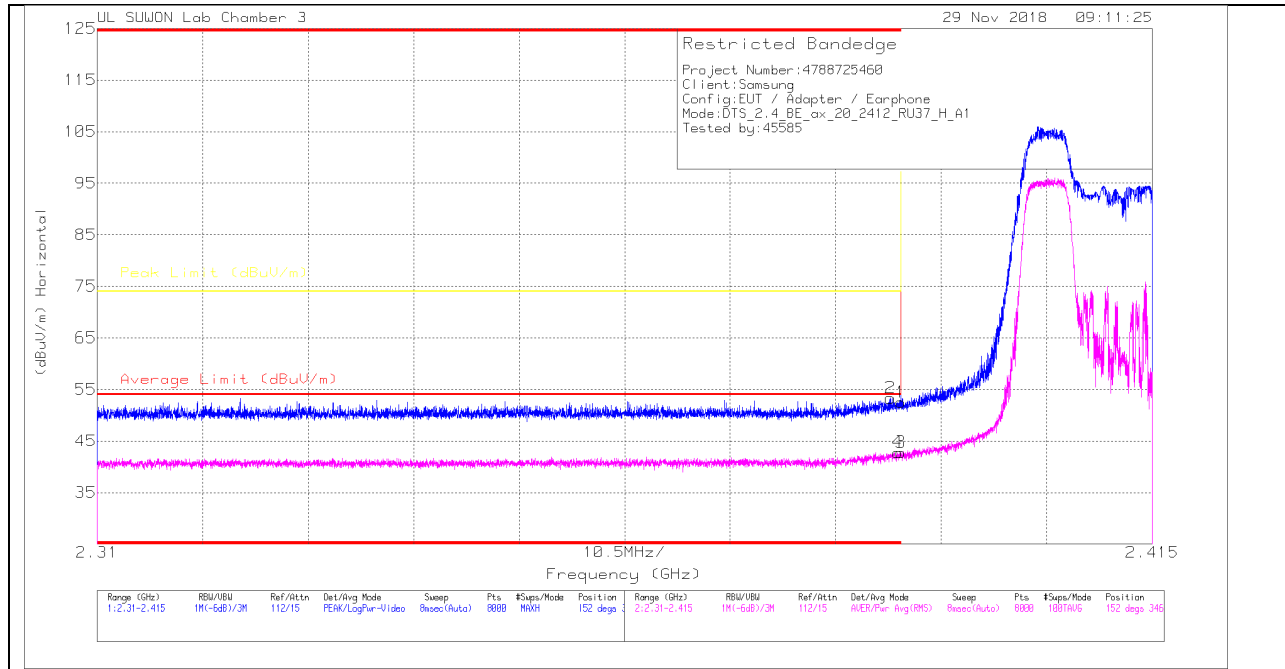
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

52T RU mode (ANT_1 / RU offset 37)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

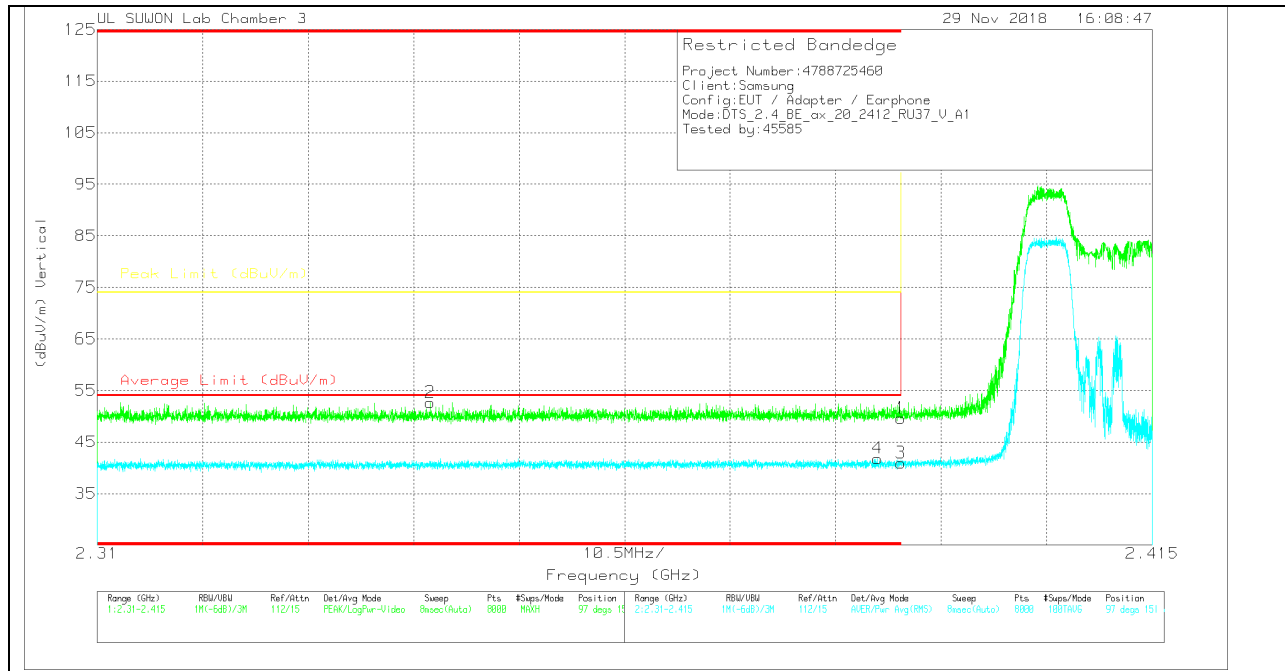
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00209959	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	44.2	Pk	31.7	-23.4	0	52.5	-	-	74	-21.5	152	346	H
2	* 2.389	45.03	Pk	31.7	-23.4	0	53.33	-	-	74	-20.67	152	346	H
3	* 2.39	34.01	RMS	31.7	-23.4	.48	42.79	54	-11.21	-	-	152	346	H
4	* 2.39	34.03	RMS	31.7	-23.4	.48	42.81	54	-11.19	-	-	152	346	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0020959	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Asimuth (Degs)	Height (cm)	Polarity
1	* 2.39	41.32	Pk	31.7	-23.4	0	49.62	-	-	74	-24.38	97	151	V
2	* 2.343	44.47	Pk	31.6	-23.4	0	52.67	-	-	74	-21.33	97	151	V
3	* 2.39	32.17	RMS	31.7	-23.4	-48	40.95	54	-13.05	-	-	97	151	V
4	* 2.388	33.06	RMS	31.7	-23.4	-48	41.84	54	-12.16	-	-	97	151	V

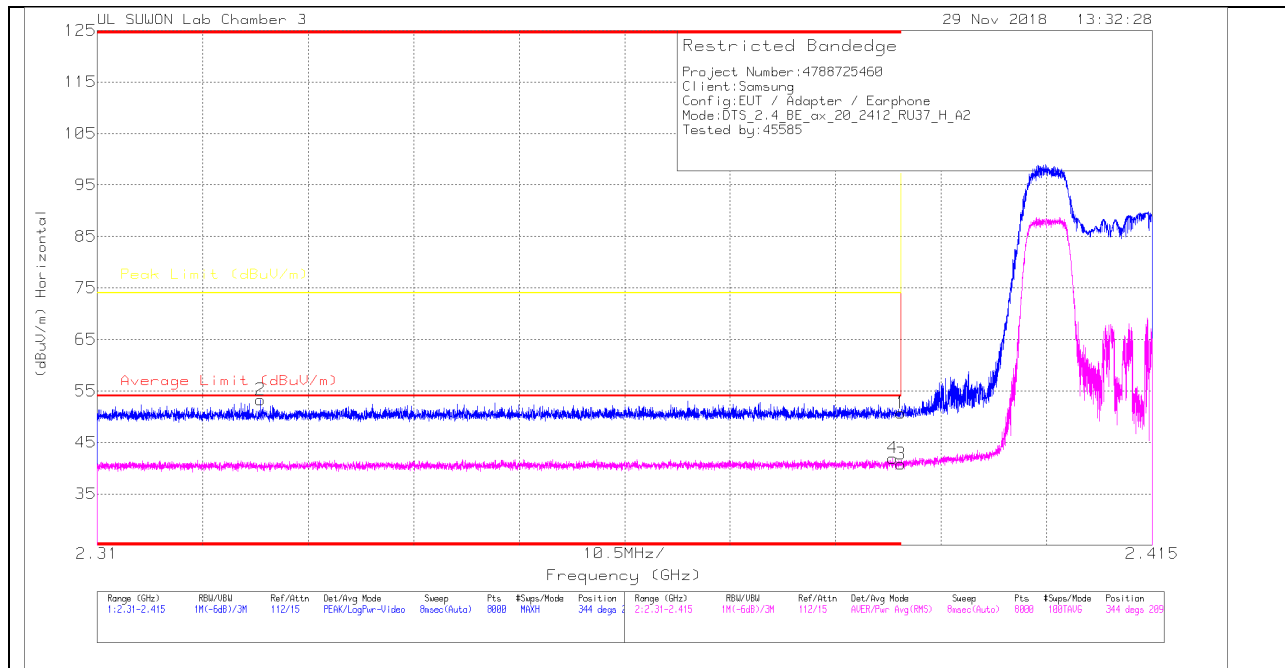
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

52T RU mode (ANT_2 / RU offset 37)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

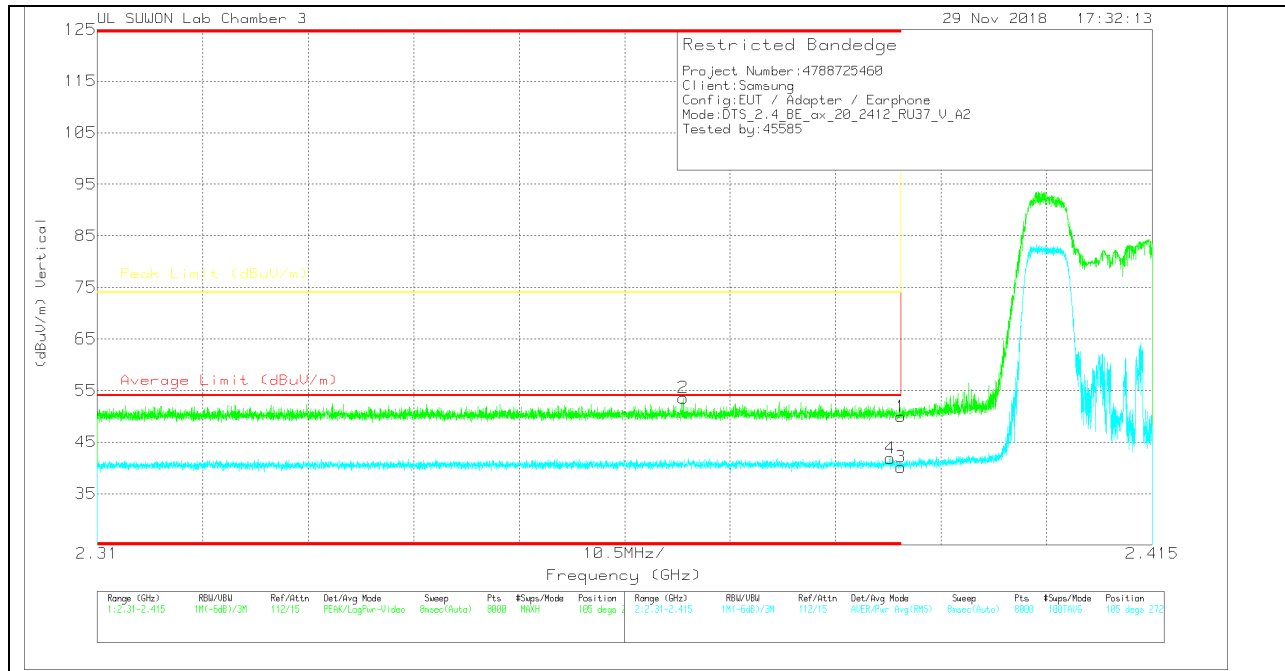
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00205959	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	42.43	Pk	31.7	-23.4	0	50.73	-	-	74	-23.27	344	209	H
2	* 2.326	45.19	Pk	31.5	-23.4	0	53.29	-	-	74	-20.71	344	209	H
3	* 2.39	32.04	RMS	31.7	-23.4	.48	40.82	54	-13.18	-	-	344	209	H
4	* 2.389	33.18	RMS	31.7	-23.4	.48	41.96	54	-12.04	-	-	344	209	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00209959	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Asmuth (Degs)	Height (cm)	Polarity
1	* 2.39	41.66	Pk	31.7	-23.4	0	49.96	-	-	74	-24.04	105	272	V
2	* 2.368	45.37	Pk	31.6	-23.4	0	53.57	-	-	74	-20.43	105	272	V
3	* 2.39	31.36	RMS	31.7	-23.4	-48	40.14	54	-13.86	-	-	105	272	V
4	* 2.389	33.08	RMS	31.7	-23.4	-48	41.86	54	-12.14	-	-	105	272	V

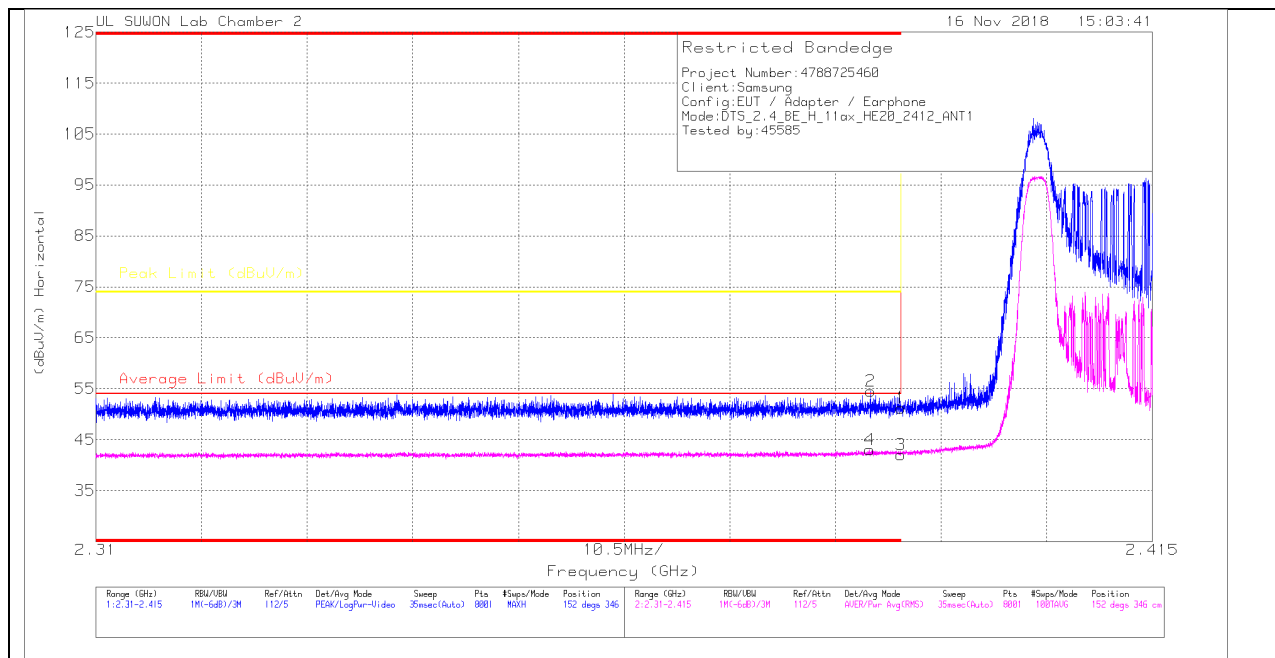
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

26T RU mode (ANT_1 / RU offset 0)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

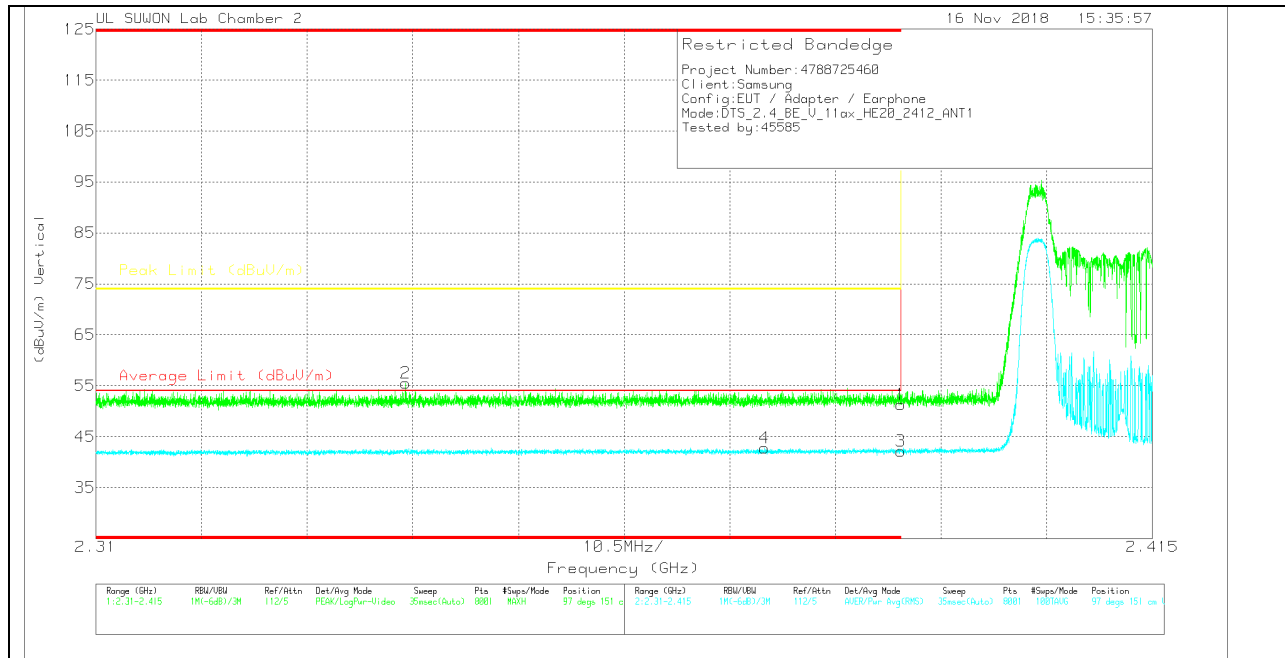
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.45	Pk	31.6	-20.8	0	51.25	-	-	74	-22.75	152	346	H
2	* 2.387	43.72	Pk	31.6	-20.8	0	54.52	-	-	74	-19.48	152	346	H
3	* 2.39	30.79	RMS	31.6	-20.8	.49	42.08	54	-11.92	-	-	152	346	H
4	* 2.387	31.76	RMS	31.6	-20.8	.49	43.05	54	-10.95	-	-	152	346	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.52	PK	31.6	-20.8	0	51.32	-	-	74	-22.68	97	151	V
2	* 2.341	44.78	PK	31.5	-20.8	0	55.48	-	-	74	-18.52	97	151	V
3	* 2.39	30.87	RMS	31.6	-20.8	.49	42.16	54	-11.84	-	-	97	151	V
4	* 2.376	31.49	RMS	31.6	-20.8	.49	42.78	54	-11.22	-	-	97	151	V

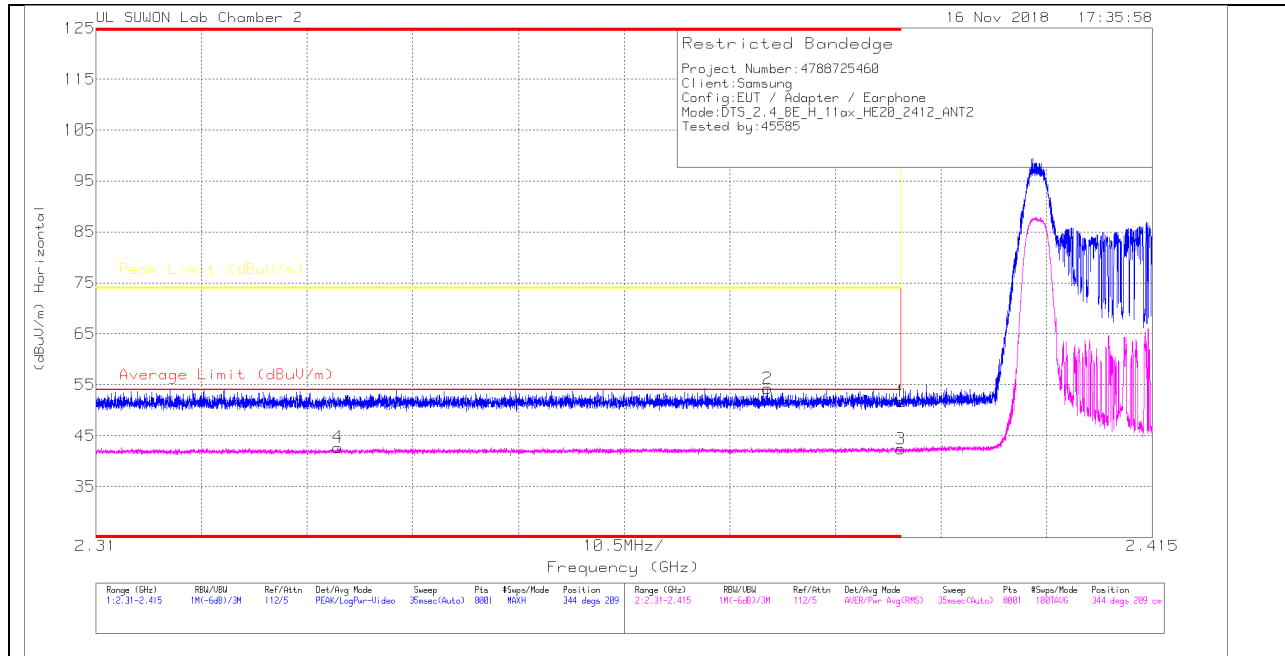
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - Peak detector

RMS - RMS detection

26T RU mode (ANT_2 / RU offset 0)

HORIZONTAL PEAK AND AVERAGE PLOT



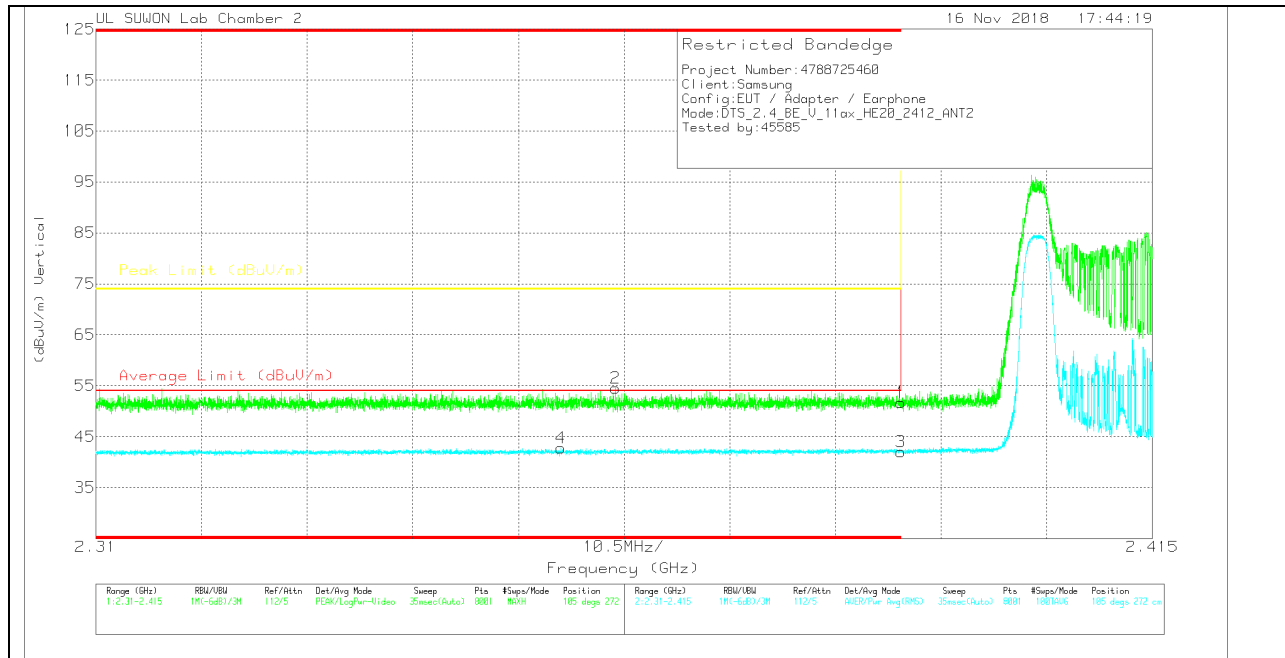
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.9	PK	31.6	-20.8	0	51.7	-	-	74	-22.3	344	209	H
2	* 2.377	43.45	PK	31.6	-20.8	0	54.25	-	-	74	-19.75	344	209	H
3	* 2.39	31.07	RMS	31.6	-20.8	.49	42.36	54	-11.64	-	-	344	209	H
4	* 2.334	31.53	RMS	31.5	-20.8	.49	42.72	54	-11.28	-	-	344	209	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.9	Pk	31.6	-20.8	0	51.7	-	-	74	-22.3	105	272	V
2	* 2.362	43.69	Pk	31.6	-20.8	0	54.49	-	-	74	-19.51	105	272	V
3	* 2.39	30.78	RMS	31.6	-20.8	-49	42.07	54	-11.93	-	-	105	272	V
4	* 2.356	31.47	RMS	31.6	-20.8	-49	42.76	54	-11.24	-	-	105	272	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection